

|                                                                                                                                                     |            |      |                                                                                                                                                                             |     |      |        |
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|                                                                                                                                                     |            |      |                                                                                                                                                                             |     |      |        |
| 2                                                                                                                                                   | 2025.04.21 | 竣工图  | 李北莉                                                                                                                                                                         | 董琦祎 | 王勐   | 刘建欣    |
| 1D                                                                                                                                                  | 2024.10.02 | 供实施  | 房屹                                                                                                                                                                          | 董琦祎 | 王勐   | 刘建欣    |
| 1C                                                                                                                                                  | 2024.09.23 | 供实施  | 房屹                                                                                                                                                                          | 董琦祎 | 王勐   | 刘建欣    |
| 1B                                                                                                                                                  | 2024.01.30 | 供实施  | 房屹                                                                                                                                                                          | 董琦祎 | 王勐   | 刘建欣    |
| 1A                                                                                                                                                  | 2023.12.28 | 供实施  | 房屹                                                                                                                                                                          | 董琦祎 | 王勐   | 刘建欣    |
| 1                                                                                                                                                   | 2023.08.07 | 供实施  | 房屹                                                                                                                                                                          | 董琦祎 | 王勐   | 刘建欣    |
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| 承包商的徽标:<br>                                                      |            |      | 承包商全称:<br>中国天辰工程有限公司和中石化工程建设有限公司<br>联合体<br>Consortium of China Tianchen Engineering Corporation and Zhongshi Chemical Engineering Construction Co., Ltd.<br>承包商代码:<br>TCCZS |     |      |        |
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| 文件名称：管道材料等级表 Piping Material Class                                                                                                                  |            |      |                                                                                                                                                                             |     | 文件类型 | 设计     |
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|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                             |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                          | 2 |

### Piping Material Class Index 管道材料等级索引

| Serial No. | Piping Material Class | Service Code | Service                  | Design Pressure | Design Temperature | Flange                                               | Pipe Material                    | Gasket                                  | C.A.      | Max. Size | Remarks |
|------------|-----------------------|--------------|--------------------------|-----------------|--------------------|------------------------------------------------------|----------------------------------|-----------------------------------------|-----------|-----------|---------|
| 序号         | 管道等级                  | 介质代号         | 介质名称                     | 设计压力 (MPa)      | 设计温度 (°C)          | 法兰参数及材料                                              | 管道材料                             | 垫片材料                                    | 腐蚀裕度 (mm) | 尺寸范围 NPS  | 备注      |
| 1          | 1CG                   | PTW          | 生活水                      | 1.77            | 100                | Class150<br>TH-RF<br>ASTM A105<br>Galv               | ASTM A106<br>GR. B<br>Galvanized | Non-Asbestos<br>Nonmetallic Flat Gasket | 0         | 50        |         |
| 2          | 1KC                   | PA<br>N      | 压缩空气<br>氮气               | 0.98<br>1.78    | 60<br>-19~65       | Class150<br>SW-RF<br>ASTM A105<br>ASME B16.5         | A106<br>Gr.B                     | Spiral Wound Flexible Graphite Gasket   | 1.5       | 50        |         |
| 3          | 1SSP                  | IA           | 仪表空气                     | 0.98            | -20~60             | Class150<br>SW/WN-RF<br>ASTM A182 F304<br>ASME B16.5 | A312<br>TP304                    | Spiral Wound Flexible Graphite Gasket   | 0         | 50        |         |
| 4          | 1SSW                  | FF<br>FW     | 泡沫混合液 (地上)<br>消防水海水 (地上) | 1.6<br>1.6      | 0~50<br>0~60       | Class150<br>SW/WN-RF<br>ASTM A182 F316               | A312<br>TP316                    | Spiral Wound Flexible Graphite          | 0         | 80<br>500 |         |

|                                                                                   |                                           |     |      |            |                                                                                             |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------|---|
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|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                          | 2 |

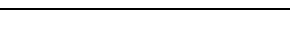
| Serial No. | Piping Material Class | Service Code                                             | Service                                                                     | Design Pressure                                                                    | Design Temperature                                                                                    | Flange                                                       | Pipe Material               | Gasket                                  | C.A.      | Max. Size                                                      | Remarks              |
|------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------|-----------------------------------------|-----------|----------------------------------------------------------------|----------------------|
| 序号         | 管道等级                  | 介质代号                                                     | 介质名称                                                                        | 设计压力 (MPa)                                                                         | 设计温度 (°C)                                                                                             | 法兰参数及材料                                                      | 管道材料                        | 垫片材料                                    | 腐蚀裕度 (mm) | 尺寸范围 NPS                                                       | 备注                   |
|            |                       |                                                          |                                                                             |                                                                                    |                                                                                                       | ASME B16.5                                                   |                             | Gasket                                  |           |                                                                |                      |
| 5          | 1SS                   | LNG<br>NG<br>NG<br><br>NG<br>DR<br><br>FL<br><br>FG<br>N | 低压 LNG<br>低压 NG<br>低压 NG<br><br>低压 NG<br>低压 LNG<br>排液<br>低压火炬气<br>燃料气<br>氮气 | 1.89/1.77<br>0.35<br>0.35<br><br>1.89<br>1.89/1.77<br><br>0.35<br><br>0.98<br>1.89 | -170~38/60<br>-160~60<br>-160~60<br><br>-135/38<br>-170~38/60<br><br>-170/60<br><br>-65~60<br>-170/38 | Class150<br>WN-RF<br>ASTM A182<br>F304/304L<br>ASME<br>B16.5 | A312<br>/A358<br>TP304/304L | Spiral Wounded Flexible Graphite Gasket | 0         | 600<br>400<br>150<br><br>150<br>100<br><br>150<br><br>50<br>50 | BOG<br>安全阀排气<br>泵筒放空 |
| 6          | 9SS                   | LNG<br><br><br><br><br><br><br>DR                        | 高压 LNG<br><br><br><br><br><br><br>高压 LNG<br>排液                              | 13.9<br><br><br><br><br><br><br>13.9                                               | -170/60<br><br><br><br><br><br><br>-170/60                                                            | Class900<br>WN-RF<br>ASTM A182<br>F304/304L<br>ASME<br>B16.5 | A312<br>/A358<br>TP304/304L | Spiral Wounded Flexible Graphite Gasket | 0         | 650<br><br><br><br><br><br><br>100                             |                      |

|                                                                                   |                                           |     |      |            |                                                                                     |    |
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|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            |                                                                                     | 版次 |

| Serial No. | Piping Material Class | Service Code | Service            | Design Pressure | Design Temperature | Flange                                                    | Pipe Material                              | Gasket                                              | C.A.      | Max. Size | Remarks                |
|------------|-----------------------|--------------|--------------------|-----------------|--------------------|-----------------------------------------------------------|--------------------------------------------|-----------------------------------------------------|-----------|-----------|------------------------|
| 序号         | 管道等级                  | 介质代号         | 介质名称               | 设计压力 (MPa)      | 设计温度 (°C)          | 法兰参数及材料                                                   | 管道材料                                       | 垫片材料                                                | 腐蚀裕度 (mm) | 尺寸范围 NPS  | 备注                     |
| 7          | 9KC                   | NG           | 高压 NG              | 13.9            | -46~50             | Class900<br>SW/WN-RF<br>ASTM A350<br>LF2<br>ASME<br>B16.5 | ASTM<br>A333 Gr.<br>6                      | Spiral<br>Wounded<br>Flexible<br>Graphite<br>Gasket | 1.5       | 750       |                        |
| 7+         | 9KCA                  | NG           | 天然气                | 13.9            | -46/50             | Class900<br>WN-RF<br>ASTM A350<br>LF2<br>ASME<br>B16.5    | API 5L<br>X65<br>PSL2                      | Spiral<br>Wounded<br>Flexible<br>Graphite<br>Gasket | 0         | 750       |                        |
| 8          | 1GRC                  | SWS          | 海水                 | 0.7             | 0~60               | 7 bars<br>SW/LJ/WN-<br>FF/RJ<br>GRV                       | DN≤<br>100Cu/Ni<br>Alloy DN<br>><br>100GRV | Non-Asb<br>estos<br>Nonmetal<br>lic Flat<br>Gasket  | 0         | 1500      | 地下（仅<br>dn1500）<br>/地上 |
| 9          | 1PVC                  | CWD          | 清净废水<br>（空调凝<br>液） |                 | 0~60               |                                                           | UPVC                                       |                                                     | 0         | 200       | 地上（室<br>内）、地下          |
| 10         | 1SRPE                 | FW           | 消防水                | 1.6             | 0~60               | CL150<br>FF/RF                                            | Steel<br>Mesh                              | Non-Asb<br>estos                                    | 0         | 500       | 地下                     |

|                                                                                   |                                           |     |      |            |                                                                                             |   |
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|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                             |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                          | 2 |

| Serial No. | Piping Material Class | Service Code | Service | Design Pressure | Design Temperature | Flange             | Pipe Material      | Gasket                  | C.A.      | Max. Size | Remarks |
|------------|-----------------------|--------------|---------|-----------------|--------------------|--------------------|--------------------|-------------------------|-----------|-----------|---------|
| 序号         | 管道等级                  | 介质代号         | 介质名称    | 设计压力 (MPa)      | 设计温度 (°C)          | 法兰参数及材料            | 管道材料               | 垫片材料                    | 腐蚀裕度 (mm) | 尺寸范围 NPS  | 备注      |
|            |                       |              | (海水)    |                 |                    | Steel Reinforce PE | Reinforced PE Pipe | Nonmetallic Flat Gasket |           |           |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
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|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1CG

BASIC MATERIAL 基本材料: Killed Carbon Steel/Galvanized  
 FLANGE RATING & FACING 压力等级及密封面: Class150 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: PTW

|                          |      |      |      |  |  |  |  |  |  |  |  |  |  |
|--------------------------|------|------|------|--|--|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38  | 50   | 100  |  |  |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 1.96 | 1.92 | 1.77 |  |  |  |  |  |  |  |  |  |  |

| ITEM 名称                | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                        | SCH 壁厚 | NOTE 备注 |
|------------------------|-----------|-----------|-------------------------------------------------------|--------|---------|
| PIPE 管子                |           |           |                                                       |        |         |
|                        | 15~50     |           | ASTM A106 Gr. B GALV., SMLS, MNPT (TBE), ASME B36.10M | 1      |         |
| FORGED FITTING 锻制管件    |           |           |                                                       |        |         |
| ELBOW 90°<br>90°弯头     | 15~50     |           | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| ELBOW 45°<br>45°弯头     | 15~50     |           | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| TEE EQUAL<br>等径三通      | 15~50     |           | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| TEE REDU.<br>异径三通      | 20~50     | 15~40     | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| COUPLING<br>等径管箍       | 15~50     |           | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| COUPLING REDU.<br>异径管箍 | 20~50     | 15~40     | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| CAP<br>管帽              | 15~50     |           | ASTM A105 GALV., FNPT, CL3000, ASME B16.11            |        |         |
| BW FITTING 对焊管件        |           |           |                                                       |        |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
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|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                     | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                                         | DESCRIPTION 描述                                                                                                              | SCH 壁厚 | NOTE 备注 |
|-----------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------|---------|
| FLANGE 法兰                   |           |                                                                                                                                                                                                                   |                                                                                                                             |        |         |
| TH FLANGE<br>螺纹法兰           | 15~50     |                                                                                                                                                                                                                   | ASTM A105 GALV., FNPT-RF, CL150, ASME B16.5                                                                                 |        |         |
| BL FLANGE<br>盲法兰            | 15 ~ 50   |                                                                                                                                                                                                                   | ASTM A105 GALV, BL-RF, CL150, ASME B16.5                                                                                    |        |         |
| SPECTACLE<br>BLIND<br>8 字盲板 | 15 ~ 50   |                                                                                                                                                                                                                   | ASTM A285 GR. C GALV., RF, CL150, ASME B16.48                                                                               |        |         |
| FASTENER 紧固件                |           |                                                                                                                                                                                                                   |                                                                                                                             |        |         |
| BOLT/NUT<br>全螺纹螺柱/<br>厚型螺母  |           |                                                                                                                                                                                                                   | A193 B7/A194-2H, Zinc Coating acc. to ASTM A153. , ASME B18.31.2/ B18.2.2.                                                  |        |         |
| GASKET 垫片                   |           |                                                                                                                                                                                                                   |                                                                                                                             |        |         |
|                             | 15~50     |                                                                                                                                                                                                                   | Flat Ring Gasket, HIGH PERFORMANCE NITRILE RUBBER Compressed sheet, RF, CL150, ASME B16.21, For ASME B16.5, thickness=1.6mm |        |         |
| 阀门                          |           |                                                                                                                                                                                                                   |                                                                                                                             |        |         |
| GATE<br>VALVE<br>闸阀         | 15 ~ 50   | Valve Gate Flanged Ends - ASME B16.5 Class 150 -API 602 - Flanged Raised face -Handwheel - Body: ASTM A105 - Trim: 316                                                                                            | Z41R1-150C1                                                                                                                 |        |         |
| GLOBE<br>VALVE<br>截止阀       | 15 ~ 50   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS5352 - Flanged Raised face - Handwheel - Body: ASTM A105 - Trim: 316                                                                          | J41R1-150C1                                                                                                                 |        |         |
| CHECK<br>VALVE<br>止回阀       | 15 ~ 50   | Valve Lift Check Flanged Ends - ASME B16.5 Class 150- BS5352 - Flanged Raised face -Body: ASTM A105 - Trim: 316                                                                                                   | H41R1-150C1                                                                                                                 |        |         |
| BALL<br>VALVE<br>球阀         | 15~50     | Valve Ball Female Ends Reduced Port - Class 800 -BS5351 - Female screwed end x Female screwed end -Split body / Reduced bore / Floating ball – Wrench operated - Body: ASTM A105 - Trim: AISI 316 ball, PTFE Seat | Q11F2-800C1                                                                                                                 |        |         |

# 1. WALL THICKNESS TABLE.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
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|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1KC

BASIC MATERIAL 基本材料: Killed Carbon Steel  
 FLANGE RATING & FACING 压力等级及密封面: Class150 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 1.5 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: PA, N

|                           |      |      |      |      |      |      |  |  |  |  |  |  |  |  |
|---------------------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):     | ≤38  | 50   | 100  | 150  | 200  | 250  |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力. (MPa): | 1.96 | 1.92 | 1.77 | 1.58 | 1.38 | 1.21 |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
| PIPE 管子 |           |           |                |        |         |

|        |                                      |   |
|--------|--------------------------------------|---|
| 15~40  | ASTM A106 Gr. B,SMLS,PE, ASME B36.10 | 1 |
| 50~300 | ASTM A106 Gr. B,SMLS,BE, ASME B36.10 | 1 |

### FORGED FITTING 锻制管件

|                        |          |         |                                    |
|------------------------|----------|---------|------------------------------------|
| ELBOW 90°<br>90°弯头     | 15~40    |         | ASTM A105, SW, CL3000, ASME B16.11 |
| ELBOW 45°<br>45°弯头     | 15~40    |         | ASTM A105, SW, CL3000, ASME B16.11 |
| TEE EQUAL<br>等径三通      | 15~40    |         | ASTM A105, SW, CL3000, ASME B16.11 |
| TEE REDU<br>异径三通       | 20~40    | 15~25   | ASTM A105, SW, CL3000, ASME B16.11 |
| COUPLING<br>等径管箍       | 15~40    |         | ASTM A105, SW, CL3000, ASME B16.11 |
| COUPLING REDU.<br>异径管箍 | 20~40    | 15~25   | ASTM A105, SW, CL3000, ASME B16.11 |
| CAP<br>管帽              | 15~40    |         | ASTM A105, SW, CL3000, ASME B16.11 |
| SOCKOLET               | 50 ~ 300 | 15 ~ 40 | ASTM A105, SW, CL3000, MSS SP-97   |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

承插焊支管台

#### BW FITTING 对焊管件

|                       |          |          |                                       |         |  |
|-----------------------|----------|----------|---------------------------------------|---------|--|
| ELBOW 90°<br>90°弯头    | 50 ~ 300 |          | ASTM A234 WPB, LR, SMLS,BW,ASME B16.9 | AS PIPE |  |
| ELBOW 45°<br>45° 弯头   | 50 ~ 300 |          | ASTM A234 WPB, LR, SMLS,BW,ASME B16.9 | AS PIPE |  |
| TEE EQUAL<br>等径三通     | 50 ~ 300 |          | ASTM A234 WPB, SMLS,BW, ASME B16.9    | AS PIPE |  |
| TEE REDU.<br>异径三通     | 65~ 300  | 50 ~ 250 | ASTM A234 WPB, SMLS,BW, ASME B16.9    | AS PIPE |  |
| REDUCER CON.<br>同心异径管 | 50 ~ 300 | 40 ~ 250 | ASTM A234 WPB, SMLS,BW, ASME B16.9    | AS PIPE |  |
| REDUCER ECC.<br>偏心异径管 | 50 ~ 300 | 40 ~ 250 | ASTM A234 WPB, SMLS,BW, ASME B16.9    | AS PIPE |  |
| CAP<br>管帽             | 50 ~ 300 |          | ASTM A234 WPB, SMLS,BW, ASME B16.9    | AS PIPE |  |

#### FLANGE 法兰

|                          |          |  |                                      |         |  |
|--------------------------|----------|--|--------------------------------------|---------|--|
| SW FLANGE<br>承插焊法兰       | 15 ~ 40  |  | ASTM A105, SW-RF,CL150,ASME B16.5    | AS PIPE |  |
| WN FLANGE<br>对焊法兰        | 50 ~ 300 |  | ASTM A105, WN-RF,CL150,ASME B16.5    | AS PIPE |  |
| BL FLANGE<br>盲法兰         | 15 ~ 300 |  | ASTM A105, BL-RF, CL150, ASME B16.5  |         |  |
| SPECTACLE BLIND<br>8 字盲板 | 15 ~ 300 |  | ASTM A515-65., RF, CL150,ASME B16.48 |         |  |

#### FASTENER 紧固件

|          |                                       |
|----------|---------------------------------------|
| BOLT/NUT | A193 B7/A194-2H, Zinc Coating acc. to |
|----------|---------------------------------------|

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

全螺纹螺柱/  
厚型螺母

ASTM A153. , ASME B18.31.2/ B18.2.2.

#### GASKET 垫片

15 ~ 300

Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and CS out Ring, RF, CL150, ASME B16.20, ASME B16.5

| 阀门                 |          |                                                                                                                                                                                                                 |               |  |
|--------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--|
| GATE VALVE<br>闸阀   | 15 ~ 40  | Valve Gate Flanged Ends - ASME B16.5 Class 150 -API 602 - Flanged Raised face -Handwheel - Body: ASTM A105 - Trim: 13 Chrome                                                                                    | Z41H1-150C1   |  |
|                    | 50 ~ 300 | Valve Gate Flanged Ends - ASME B16.5 Class 150 -API 600 -Flanged Raised face -Handwheel - Body: ASTM A216 WCB -Trim: 13 Chrome                                                                                  | Z41H1-150C2   |  |
| GLOBE VALVE<br>截止阀 | 15 ~ 40  | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS5352 - Flanged Raised face - Handwheel - Body: ASTM A105 - Trim: 13 Chrome                                                                  | J41H1-150C1   |  |
|                    | 50 ~ 200 | Valve Globe Flanged Ends Through Pattern - ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Handwheel - Body: ASTM A216 WCB -Trim: 13 Chrome                                                               | J41H1-150C2   |  |
| CHECK VALVE<br>止回阀 | 15 ~ 40  | Valve Lift Check Flanged Ends - ASME B16.5 Class 150- BS5352 - Flanged Raised face -Body: ASTM A105 - Trim: 13 Chrome                                                                                           | H41H1-150C1   |  |
|                    | 50 ~ 300 | Valve Dual Plate Check Wafer - ASME B16.5 Class 150 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A216 WCB- Trim: 13Chrome                                                           | H76H1-150C2   |  |
| BALL VALVE<br>球阀   | 15 ~ 150 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face – Split body / Reduced bore / Floating ball - Wrench operated - Body: ASTM A216 WCB - Trim: AISI 316 Ball, PTFE Seat | Q41F8-150C2-R |  |
|                    | 15 ~ 150 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face – Split body / Full bore / Floating ball - Wrench operated - Body: ASTM A216 WCB - Trim: AISI 316 Ball, PTFE Seat    | Q41F8-150C2-F |  |

1. 1WALL THICKNESS TABLE.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1SSP

BASIC MATERIAL 基本材料: SS304  
 FLANGE RATING & FACING 压力等级及密封面: Class150 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: IA

|                          |      |      |      |      |      |      |  |  |  |  |  |  |  |  |
|--------------------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38  | 50   | 100  | 150  | 200  | 250  |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 1.90 | 1.83 | 1.57 | 1.42 | 1.32 | 1.21 |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
| PIPE 管子 |           |           |                |        |         |

|       |                                        |   |
|-------|----------------------------------------|---|
| 15~40 | ASTM A312 TP304, SMLS, PE, ASME B36.19 | 1 |
| 50~50 | ASTM A312 TP304, SMLS, BE, ASME B36.19 | 1 |

### NIPPLE 短管

|              |       |                                                        |         |
|--------------|-------|--------------------------------------------------------|---------|
| NIPPLE<br>短管 | 15~40 | ASTM A312 TP304, SMLS, PBE, ASME B36.19, L=100mm       | AS PIPE |
|              | 15~40 | ASTM A312 TP304, SMLS, TBE, MNPT, ASME B36.19, L=100mm | AS PIPE |
|              | 15~40 | ASTM A312 TP304, SMLS, POEXTOE, ASME B36.19, L=100mm   | AS PIPE |

### FORGED FITTING 锻制管件

|                    |                  |                                          |
|--------------------|------------------|------------------------------------------|
| ELBOW 90°<br>90°弯头 | 15~40            | ASTM A182 F304., SW, CL3000, ASME B16.11 |
| ELBOW 45°<br>45°弯头 | 15~40            | ASTM A182 F304., SW, CL3000, ASME B16.11 |
| TEE EQUAL<br>等径三通  | 15~40            | ASTM A182 F304., SW, CL3000, ASME B16.11 |
| TEE REDU<br>异径三通   | 32~40      25~32 | ASTM A182 F304., SW, CL3000, ASME B16.11 |

|                                                                                   |                                           |     |      |            |                                                                                     |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                     |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                  | 2 |

| ITEM 名称                       | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                           | SCH 壁厚  | NOTE 备注 |
|-------------------------------|-----------|-----------|------------------------------------------|---------|---------|
| COUPLING<br>等径管箍              | 15~40     |           | ASTM A182 F304., SW, CL3000, ASME B16.11 |         |         |
| COUPLING<br>REDU.<br>异径管箍     | 20 ~40    | 15~32     | ASTM A182 F304., SW, CL3000, ASME B16.11 |         |         |
| CAP<br>管帽                     | 15 ~ 40   |           | ASTM A182 F304., SW, CL3000, ASME B16.11 |         |         |
| SOCKOLET<br>承插焊支管台            | 50 ~ 50   | 15 ~ 40   | ASTM A182 F304., SW, CL3000, MSS SP-97   |         |         |
| <b>BW FITTING 对焊管件</b>        |           |           |                                          |         |         |
| ELBOW 90°<br>90°弯头            | 50 ~ 50   |           | ASTM A403 WP304, LR, SMLS,BW,ASME B16.9  | AS PIPE |         |
| ELBOW 45°<br>45° 弯头           | 50 ~ 50   |           | ASTM A403 WP304, LR, SMLS,BW,ASME B16.9  | AS PIPE |         |
| TEE EQUAL<br>等径三通             | 50 ~ 50   |           | ASTM A403 WP304, SMLS, BW, ASME B16.9    | AS PIPE |         |
| TEE REDU.<br>异径三通             | 50 ~ 50   | 40 ~ 40   | ASTM A403 WP304, SMLS, BW, ASME B16.9    | AS PIPE |         |
| REDUCER<br>CON.<br>同心异径管      | 50 ~ 50   | 40 ~ 40   | ASTM A403 WP304, SMLS, BW, ASME B16.9    | AS PIPE |         |
| REDUCER<br>ECC.<br>偏心异径管      | 50 ~ 50   | 40 ~ 40   | ASTM A403 WP304, SMLS, BW, ASME B16.9    | AS PIPE |         |
| CAP<br>管帽                     | 50 ~ 50   |           | ASTM A403 WP304, SMLS, BW, ASME B16.9    | AS PIPE |         |
| CONC.SWAG<br>NIPPLE<br>同心异径短节 | 20~40     | 15~25     | ASTM A403 WP304, SMLS, PBE, MSS SP-95    | AS PIPE |         |
|                               | 50~50     | 15~40     | ASTM A403 WP304, SMLS, BLEXTSE,MSS SP-95 | AS PIPE |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                            | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                              | SCH 壁厚  | NOTE 备注 |
|------------------------------------|-----------|-----------|---------------------------------------------|---------|---------|
|                                    | 50~50     | 15~40     | ASTM A403 WP304, SMLS, BLEXPSE,MSS<br>SP-95 | AS PIPE |         |
| ECC. SWAGE<br>NIPPLE<br><br>偏心异径短节 | 20~40     | 15~25     | ASTM A403 WP304, SMLS, PBE, MSS<br>SP-95    | AS PIPE |         |
|                                    | 50~50     | 15~40     | ASTM A403 WP304, SMLS, BLEXTSE,MSS<br>SP-95 | AS PIPE |         |
|                                    | 50~50     | 15~40     | ASTM A403 WP304, SMLS, BLEXPSE,MSS<br>SP-95 | AS PIPE |         |

#### FLANGE 法兰

|                                 |         |                                             |         |
|---------------------------------|---------|---------------------------------------------|---------|
| SW FLANGE<br>承插焊法兰              | 15 ~ 40 | ASTM A182 F304, SW-RF, CL150, ASME<br>B16.5 | AS PIPE |
| WN FLANGE<br>对焊法兰               | 50 ~ 50 | ASTM A182 F304, WN-RF, CL150, ASME<br>B16.5 | AS PIPE |
| BL FLANGE<br>盲法兰                | 15 ~ 50 | ASTM A182 F304, BL-RF, CL150, ASME<br>B16.5 |         |
| SPECTACLE<br>BLIND<br><br>8 字盲板 | 15 ~ 50 | ASTM A240 304., RF, CL150,ASME B16.48       |         |

#### FASTENER 紧固件

|                            |                                                    |
|----------------------------|----------------------------------------------------|
| BOLT/NUT<br>全螺纹螺柱/<br>厚型螺母 | A320 B8M CL.2/A194 8MA, ASME B18.31.2/<br>B18.2.2. |
|----------------------------|----------------------------------------------------|

#### GASKET 垫片

|         |                                                                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15 ~ 80 | Spiral Wounded Gasket, 316SS Wounded<br>with Graphite filler, 316SS Inner Ring and<br>expoxy coated CS out Ring, RF, CL150,<br>ASME B16.20, ASME B16.5 |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------|

| 阀门                      |         |                                                                                                        |             |
|-------------------------|---------|--------------------------------------------------------------------------------------------------------|-------------|
| GATE<br>VALVE<br><br>闸阀 | 15 ~ 40 | Valve Gate Socket-welding Ends –Class 800 – API602 -<br>Handwheel -Body: ASTM A182 F304 - Trim: -SS316 | Z51R1-800P1 |
|                         | 50 ~ 50 | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME                                                   | Z40R1-150P2 |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                                                                                      | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                     | DESCRIPTION 描述 | SCH 壁厚        | NOTE 备注 |
|----------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------|
| B16.34 - Flanged Raised face - Handwheel - Body: ASTM A351<br>CF8 - Trim: API 600 Trim SS316 |           |                                                                                                                                                                                               |                |               |         |
| GLOBE VALVE<br>截止阀                                                                           | 15 ~ 40   | Valve Globe Socket-welding Ends –Class 800 – API602 -<br>Handwheel -Body: ASTM A182 F304 - Trim: -SS316                                                                                       |                | J51R1-800P1   |         |
|                                                                                              | 50 ~ 50   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Handwheel -Body: ASTM A351 CF8 - Trim: -SS316                                                |                | J41R1-150P2   |         |
| CHECK VALVE<br>止回阀                                                                           | 15 ~ 40   | Valve Lift Check Socket-welding Ends - Class 800 – API602 -<br>Body: ASTM A182 F304 - Trim: -SS316                                                                                            |                | H51R1-800P1   |         |
|                                                                                              | 50 ~ 50   | Valve Dual Plate Check Wafer - ASME B16.5 Class 150 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF8 - Trim: SS316                                           |                | H76R1-150P2   |         |
| BALL VALVE<br>球阀                                                                             | 15 ~ 50   | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body/ Reduced bore/Floating ball - Wrench operated- Body: ASTM A351 CF8 - Trim: SS316/PTFE |                | Q41F8-150P2-R |         |

## 2. 1WALL THICKNESS TABLE.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1SSW

BASIC MATERIAL 基本材料: SS316  
 FLANGE RATING & FACING 压力等级及密封面: Class150 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: FF (地上), FW (地上)

|                           |      |      |      |      |      |      |  |  |  |  |  |  |  |  |
|---------------------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
| DESIGN TEMP. 设计温度.(°C):   | ≤38  | 50   | 100  | 150  | 200  | 250  |  |  |  |  |  |  |  |  |
| DESIGN PRESS. 设计压力.(MPa): | 1.90 | 1.84 | 1.62 | 1.48 | 1.37 | 1.21 |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

### PIPE 管子

|        |                                         |   |
|--------|-----------------------------------------|---|
| 15~40  | ASTM A312 TP316L, SMLS, PE, ASME B36.19 | 1 |
| 50~500 | ASTM A312 TP316L, SMLS, BE, ASME B36.19 | 1 |

### NIPPLE 短管

|        |       |                                                         |         |
|--------|-------|---------------------------------------------------------|---------|
| NIPPLE | 15~40 | ASTM A312 TP316L, SMLS, PBE, ASME B36.19, L=100mm       | AS PIPE |
| 短管     | 15~40 | ASTM A312 TP316L, SMLS, TBE, MNPT, ASME B36.19, L=100mm | AS PIPE |
|        | 15~40 | ASTM A312 TP316L, SMLS, POEXTOE, ASME B36.19, L=100mm   | AS PIPE |

### FORGED FITTING 锻制管件

|          |          |          |                                |         |
|----------|----------|----------|--------------------------------|---------|
| WELDOLET | 50 ~ 500 | 15 ~ 100 | ASTM A182 F316L, BW, MSS SP-97 | AS PIPE |
|----------|----------|----------|--------------------------------|---------|

承插焊支管台

### BW FITTING 对焊管件

|           |          |                                          |         |
|-----------|----------|------------------------------------------|---------|
| ELBOW 90° | 15 ~ 500 | ASTM A403 WP316L, LR, SMLS,BW,ASME B16.9 | AS PIPE |
| 90°弯头     |          |                                          |         |
| ELBOW 45° | 15 ~ 500 | ASTM A403 WP316L, LR, SMLS,BW,ASME B16.9 | AS PIPE |
| 45° 弯头    |          |                                          |         |
| TEE EQUAL | 15 ~ 500 | ASTM A403 WP316L, SMLS, BW, ASME B16.9   | AS PIPE |
| 等径三通      |          |                                          |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                    | NPS 尺寸(L) | NPS 尺寸(S)                                                                                             | DESCRIPTION 描述                                                                                                                             | SCH 壁厚      | NOTE 备注 |
|----------------------------|-----------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|
| TEE REDU.<br>异径三通          | 20 ~ 500  | 15 ~ 450                                                                                              | ASTM A403 WP316L, SMLS, BW, ASME B16.9                                                                                                     | AS PIPE     |         |
| REDUCER CON.<br>同心异径管      | 20 ~ 500  | 15 ~ 450                                                                                              | ASTM A403 WP316L, SMLS, BW, ASME B16.9                                                                                                     | AS PIPE     |         |
| REDUCER ECC.<br>偏心异径管      | 20 ~ 500  | 15 ~ 450                                                                                              | ASTM A403 WP316L, SMLS, BW, ASME B16.9                                                                                                     | AS PIPE     |         |
| CAP<br>管帽                  | 15 ~ 500  |                                                                                                       | ASTM A403 WP316L, SMLS, BW, ASME B16.9                                                                                                     | AS PIPE     |         |
| <b>FLANGE 法兰</b>           |           |                                                                                                       |                                                                                                                                            |             |         |
| WN FLANGE<br>对焊法兰          | 15 ~ 500  |                                                                                                       | ASTM A182 F316L, WN-RF, CL150, ASME B16.5                                                                                                  | AS PIPE     |         |
| BL FLANGE<br>盲法兰           | 15 ~ 500  |                                                                                                       | ASTM A182 F316L, BL-RF, CL150, ASME B16.5                                                                                                  |             |         |
| SPECTACLE BLIND<br>8字盲板    | 15 ~ 200  |                                                                                                       | ASTM A240 F316L., RF, CL150, ASME B16.48                                                                                                   |             |         |
| BLANK/ SPACER<br>插板/垫环     | 250 ~ 500 |                                                                                                       | ASTM A240 F316L., RF, CL150, ASME B16.48                                                                                                   |             |         |
| <b>FASTENER 紧固件</b>        |           |                                                                                                       |                                                                                                                                            |             |         |
| BOLT/NUT<br>全螺纹螺柱/<br>厚型螺母 |           |                                                                                                       | A320 B8M CL.2/A194 8MA, ASME B18.31.2/ B18.2.2.                                                                                            |             |         |
| <b>GASKET 垫片</b>           |           |                                                                                                       |                                                                                                                                            |             |         |
|                            | 15 ~ 500  |                                                                                                       | Spiral Wounded Gasket, 316L Wounded with Graphite filler, 316L Inner Ring and epoxy coated CS out Ring, RF, CL150, ASME B16.20, ASME B16.5 |             |         |
| <b>阀门</b>                  |           |                                                                                                       |                                                                                                                                            |             |         |
| GATE VALVE                 | 15 ~ 40   | Valve Gate Socket-welding Ends –Class 800 – API602 - Handwheel -Body: ASTM A182 F316L - Trim: -SS316L |                                                                                                                                            | Z51R3-800R3 |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称     | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                               | DESCRIPTION 描述 | SCH 壁厚         | NOTE 备注 |
|-------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------|
| 闸阀          | 50 ~ 300  | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised face - Handwheel - Body: ASTM A351 CF3M - Trim SS316L                                                                      |                | Z40R3-150R4    |         |
|             | 350 ~ 500 | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised face - Gear operated - Body: ASTM A351 CF3M - Trim SS316L                                                                  |                | Z340R3-150R4   |         |
| GLOBE VALVE | 15 ~ 40   | Valve Globe Socket-welding Ends –Class 800 – API602 - Handwheel -Body: ASTM A182 F316L- Trim: -SS316L                                                                                                   |                | J51R3-800R3    |         |
| 截止阀         | 50 ~ 150  | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Handwheel -Body: ASTM A351 CF3M - Trim: -SS316L                                                        |                | J41R3-150R4    |         |
|             | 200       | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Gear operated -Body: ASTM A351 CF3M - Trim: -SS316L                                                    |                | J341R3-150R4   |         |
| CHECK VALVE | 15 ~ 40   | Valve Lift Check Socket-welding Ends - Class 800 – API602 - Body: ASTM A182 F316L - Trim: - SS316L                                                                                                      |                | H51R3-800R3    |         |
| 止回阀         | 50 ~ 500  | Valve Dual Plate Check Wafer - ASME B16.5 Class 150 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF3M - Trim: SS316L                                                   |                | H76R3-150R4    |         |
|             | 15 ~ 150  | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body/ Reduced bore/Floating ball - Wrench operated- Body: ASTM A351 CF3M - Trim: SS316L/PTFE         |                | Q41F8-150R4-R  |         |
| BALL VALVE  | 200~500   | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body/ Reduced bore/ Trunnion mounted ball - Gear operated - Body: ASTM A351 CF3M - Trim: SS316L/PTFE |                | Q341F8-150R4-R |         |
| 球阀          | 80 ~ 150  | Valve Butterfly Wafer Concentric Design – ASME B16.5 Class 150 - API 609 – Wafer Type / To be mounted between Flat face -Wrench operated - Body: WCB+NBR - Trim: 13Cr ,Rubber Lined                     |                | D71X7-150C2    |         |
| 蝶阀          |           |                                                                                                                                                                                                         |                |                |         |

Notes:

1. WALL THICKNESS TABLE.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1SS

BASIC MATERIAL 基本材料: SS304/304L  
 FLANGE RATING & FACING 压力等级及密封面: Class150 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: LNG, NG, DR, FL

|                           |      |      |      |      |      |      |  |  |  |  |  |  |  |  |
|---------------------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
| DESIGN TEMP. 设计温度.(°C):   | ≤38  | 50   | 100  | 150  | 200  | 250  |  |  |  |  |  |  |  |  |
| DESIGN PRESS. 设计压力.(MPa): | 1.90 | 1.83 | 1.57 | 1.42 | 1.32 | 1.21 |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
| PIPE 管子 |           |           |                |        |         |

|         |                                                  |   |
|---------|--------------------------------------------------|---|
| 15~40   | ASTM A312 TP304/304L, SMLS, PE, ASME B36.19      | 1 |
| 50~150  | ASTM A312 TP304/304L, SMLS, BE, ASME B36.19      | 1 |
| 200~600 | ASTM A358 Gr.304/304L CL.1, EFW, BE, ASME B36.19 | 1 |
| 700~900 | ASTM A358 Gr.304/304L CL.1, EFW, BE, ASME B36.10 | 1 |

### NIPPLE 短管

|           |       |                                                             |         |
|-----------|-------|-------------------------------------------------------------|---------|
| NIPPLE 短管 | 15~40 | ASTM A312 TP304/304L, SMLS, PBE, ASME B36.19, L=100mm       | AS PIPE |
|           | 15~40 | ASTM A312 TP304/304L, SMLS, TBE, MNPT, ASME B36.19, L=100mm | AS PIPE |
|           | 15~40 | ASTM A312 TP304/304L, SMLS, POEXTOE, ASME B36.19, L=100mm   | AS PIPE |

### FORGED FITTING 锻制管件

|                 |        |                                               |
|-----------------|--------|-----------------------------------------------|
| ELBOW 90° 90°弯头 | 15 ~40 | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |
| ELBOW 45° 45°弯头 | 15 ~40 | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |
| TEE EQUAL 等径三通  | 15 ~40 | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                   | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                   | SCH 壁厚  | NOTE 备注 |
|---------------------------|-----------|-----------|--------------------------------------------------|---------|---------|
| TEE REDU<br>异径三通          | 20 ~40    | 15~32     | ASTM A182 F304/304L., SW, CL3000,<br>ASME B16.11 |         |         |
| COUPLING<br>等径管箍          | 15 ~40    |           | ASTM A182 F304/304L., SW, CL3000,<br>ASME B16.11 |         |         |
| COUPLING<br>REDU.<br>异径管箍 | 20 ~40    | 15~32     | ASTM A182 F304/304L., SW, CL3000,<br>ASME B16.11 |         |         |
| CAP<br>管帽                 | 15 ~ 40   |           | ASTM A182 F304/304L., SW, CL3000,<br>ASME B16.11 |         |         |
| SOCKOLET<br>承插焊支管台        | 50 ~ 600  | 15 ~ 40   | ASTM A182 F304/304L., SW, CL3000, MSS<br>SP-97   |         |         |
| WELDOLET<br>对焊支管台         | 150 ~ 600 | 15 ~ 250  | ASTM A182 F304/304L., BE, MSS SP-97              | AS PIPE |         |
| <b>BW FITTING 对焊管件</b>    |           |           |                                                  |         |         |
| ELBOW 90°<br>90°弯头        | 50 ~ 150  |           | ASTM A403 WP304/304L, LR,<br>SMLS,BW,ASME B16.9  | AS PIPE |         |
|                           | 200 ~ 600 |           | ASTM A403 WP304/304L-WX, LR,<br>BW,ASME B16.9    | AS PIPE |         |
| ELBOW 45°<br>45° 弯头       | 50 ~ 150  |           | ASTM A403 WP304/304L, LR,<br>SMLS,BW,ASME B16.9  | AS PIPE |         |
|                           | 200 ~ 600 |           | ASTM A403 WP304/304L-WX, LR,<br>BW,ASME B16.9    | AS PIPE |         |
| TEE EQUAL<br>等径三通         | 50 ~ 150  |           | ASTM A403 WP304/304L, SMLS, BW,<br>ASME B16.9    | AS PIPE |         |
|                           | 200 ~ 600 |           | ASTM A403 WP304/304L-WX, BW, ASME<br>B16.9       | AS PIPE |         |
| TEE REDU.<br>异径三通         | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW,<br>ASME B16.9    | AS PIPE |         |
|                           | 200 ~ 600 | 100 ~ 500 | ASTM A403 WP304/304L-WX, BW, ASME<br>B16.9       | AS PIPE |         |
| REDUCER<br>CON.           | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW,<br>ASME B16.9    | AS PIPE |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称              | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                 | SCH 壁厚  | NOTE 备注 |
|----------------------|-----------|-----------|------------------------------------------------|---------|---------|
| 同心异径管                | 200 ~ 600 | 100 ~ 500 | ASTM A403 WP304/304L-WX, BW, ASME B16.9        | AS PIPE |         |
| REDUCER<br>ECC.      | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9     | AS PIPE |         |
| 偏心异径管                | 200 ~ 600 | 100 ~ 500 | ASTM A403 WP304/304L-WX, BW, ASME B16.9        | AS PIPE |         |
| CAP<br>管帽            | 50 ~ 600  |           | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9     | AS PIPE |         |
| CONC.SWAG<br>NIPPLE  | 20~40     | 15~25     | ASTM A403 WP304/304L, SMLS, PBE, MSS SP-95     | AS PIPE |         |
| 同心异径短节               | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXTSE, MSS SP-95 | AS PIPE |         |
|                      | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXPSE, MSS SP-95 | AS PIPE |         |
| ECC. SWAGE<br>NIPPLE | 20~100    | 15~25     | ASTM A403 WP304/304L, SMLS, PBE, MSS SP-95     | AS PIPE |         |
| 偏心异径短节               | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXTSE, MSS SP-95 | AS PIPE |         |
|                      | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXPSE, MSS SP-95 | AS PIPE |         |

#### FLANGE 法兰

|                    |          |                                               |         |
|--------------------|----------|-----------------------------------------------|---------|
| SW FLANGE<br>承插焊法兰 | 15 ~ 40  | ASTM A182 F304/304L, SW-RF, CL150, ASME B16.5 | AS PIPE |
| WN FLANGE<br>对焊法兰  | 50 ~ 600 | ASTM A182 F304/304L, WN-RF, CL150, ASME B16.5 | AS PIPE |
| BL FLANGE<br>盲法兰   | 15 ~ 600 | ASTM A182 F304/304L, BL-RF, CL150, ASME B16.5 |         |
| BLIND DISC         | 15 ~ 600 | ASTM A240 304L, RF, CL150, ASME B16.48        |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸 (L) | NPS 尺寸 (S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|------------|------------|----------------|--------|---------|
|---------|------------|------------|----------------|--------|---------|

插板

SPACER RING    15 ~ 600    ASTM A240 304L, RF, CL150, ASME B16.48

垫环

BLIND DISC    900 ~ 900    ASTM A240 304L, RF, CL150,  
GDLNG-PJ-TRM-DD-000-PIP-10.04-10018

插板

SPACER RING    900 ~ 900    ASTM A240 304L, RF, CL150,  
GDLNG-PJ-TRM-DD-000-PIP-10.04-10018

垫环

#### FASTENER 紧固件

BOLT/NUT    A320 B8M CL.2/A194 8MA S1, ASME  
B18.31.2/ B18.2.2.

全螺纹螺柱/  
厚型螺母

#### GASKET 垫片

15 ~ 600    Spiral Wounded Gasket, 316SS Wounded  
with Graphite filler, 316SS Inner Ring and out  
Ring, RF, CL150, ASME B16.20, ASME  
B16.5

650 ~ 900    Spiral Wounded Gasket, 316SS Wounded  
with Graphite filler, 316SS Inner Ring and out  
Ring, RF, CL150, ASME B16.20, ASME  
B16.47 B

#### 阀门

GATE VALVE    25 ~ 40    Valve Gate Flanged Ends - ASME B16.5 Class 150 - API 602 -  
Flanged Raised face - Handwheel with extended bonnet - Body:  
ASTM A182 F316/316L - Trim: API 600 Trim No. 16, Suitable for  
cryogenic service    DZ41Y6-150RAL

闸阀

50~ 300    Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34  
- Flanged Raised face - Handwheel with extended bonnet - Body:  
ASTM A351 CF8M - Trim: API 600 Trim No. 16, Suitable for  
cryogenic service    DZ40Y6-150R2L

350~ 600    Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34  
- Flanged Raised face - Gear operator with extended bonnet -  
Body:ASTM A351 CF8M - Trim: API 600 Trim No. 16, Suitable for  
cryogenic service    DZ540Y6-150R2L

GLOBE VALVE    25 ~ 40    Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class  
150 - BS5352 - Flanged Raised face - Handwheel with extended  
bonnet -Body: ASTM A182 F316/316L – Trim and Seat: -SS316 with  
Stellite 6 hardfaced, Suitable for cryogenic service    DJ41Y6-150RAL

截止阀

|                                                                                   |                                           |     |      |            |                                                                                     |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                     |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                  | 2 |

| ITEM 名称            | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                                                                                                                        | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注          |
|--------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|------------------|
|                    | 50 ~ 150  | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Handwheel with extended bonnet - Body: ASTM A351 CF8M - Trim and Seat: -SS316 with Stellite 6 hardfaced Suitable for cryogenic service                                                          |                |        | DJ41Y6-150R2L    |
|                    | 200 ~ 200 | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Gear operator with extended bonnet - Body: ASTM A351 CF8M - Trim and Seat: -SS316 with Stellite 6 hardfaced Suitable for cryogenic service                                                      |                |        | DJ541Y6-150R2L   |
| CHECK VALVE<br>止回阀 | 25 ~ 40   | Valve Lift Check Flanged Ends - ASME B16.5 Class 150 - BS5352 - Flanged Raised face - Body: ASTM A182 F316/316L - Trim: API 600 Trim No. 16, Suitable for cryogenic service                                                                                                                      |                |        | DH41Y6-150RAL    |
|                    | 50~600    | Valve Dual Plate Check Wafer - ASME B16.5 Class 150 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF8M - Trim and Seat: -SS316 or CF8M with Stellite 6 hardfaced Suitable for cryogenic service                                                                  |                |        | DH76Y6-150R2L    |
| BALL VALVE<br>球阀   | 25 ~ 150  | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body / Extended bonnet / Reduced bore / Floating ball - Wrench operated with extended bonnet- Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat -Suitable for cryogenic service         |                |        | DQ41F8-150R2L-R  |
|                    | 25 ~ 150  | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body / Extended bonnet / Full bore / Floating ball- Wrench operated with extended bonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat -Suitable for cryogenic service            |                |        | DQ41F8-150R2L-F  |
|                    | 25 ~ 150  | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body / Extended bonnet / Reduced bore / Trunnion mounted ball - Wrench operated with extended bonnet- Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat -Suitable for cryogenic service |                |        | DQ47F8-150R2L-R  |
|                    | 200 ~ 400 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body / Extended bonnet / Reduced bore / Trunnion mounted ball - Gear operated with extended bonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat - Suitable for cryogenic service |                |        | DQ347F8-150R2L-R |
|                    | 200 ~ 400 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body / Extended bonnet / Full bore / Trunnion mounted ball - Gear operated with extended bonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat - Suitable for cryogenic service    |                |        | DQ347F8-150R2L-F |
|                    | 450 ~ 600 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 -                                                                                                                                                                                                                                    |                |        | DQ347F8-150R2L-R |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                                                                                                                                                                                                                            | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                                                                                     | DESCRIPTION 描述 | SCH 壁厚         | NOTE 备注 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------|
| API 6D - Flanged Raised face - Split body / Extended bonnet / Reduced bore / Trunnion mounted ball - Gear operated with extended bonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat - Suitable for cryogenic service |           |                                                                                                                                                                                                                                                               |                |                |         |
| Butterfly VALVE<br>蝶阀                                                                                                                                                                                                              | 80 ~ 150  | Valve Butterfly Wafer Triple offset Design – ASME B16.5 Class 150 - API 609 - Double flanged / To be mounted between Raised face - Wrench operated with extended bonnet - Body: ASTM A351 CF8M - Trim: AISI 316 Suitable for cryogenic service                |                | DD43R1-150R2L  |         |
|                                                                                                                                                                                                                                    | 200 ~ 600 | Valve Butterfly Wafer Triple offset Design – ASME B16.5 Class 150 - API 609 - Double flanged / To be mounted between Raised face 125 Ra to 250 Ra - Gear operated with extended bonnet - Body: ASTM A351 CF8M - Trim: AISI 316 Suitable for cryogenic service |                | DD343R1-150R2L |         |

1. Wall thickness table.
2. Low temperature impact test shall be carried out at -196℃ according to ASME B31.3.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 9SS

BASIC MATERIAL 基本材料: SS304/304L  
 FLANGE RATING & FACING 压力等级及密封面: Class900 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: LNG, DR

|                          |       |       |       |       |       |  |  |  |  |  |  |  |  |
|--------------------------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38   | 50    | 100   | 150   | 200   |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 14.89 | 14.35 | 12.26 | 11.10 | 10.34 |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
| PIPE 管子 |           |           |                |        |         |

|         |                                                  |   |
|---------|--------------------------------------------------|---|
| 15~40   | ASTM A312 TP304/304L, SMLS, PE, ASME B36.19      | 1 |
| 50~150  | ASTM A312 TP304/304L, SMLS, BE, ASME B36.19      | 1 |
| 200~650 | ASTM A358 Gr.304/304L CL.1, EFW, BE, ASME B36.10 | 1 |

### NIPPLE 短管

|        |       |                                                             |         |
|--------|-------|-------------------------------------------------------------|---------|
| NIPPLE | 15~40 | ASTM A312 TP304/304L, SMLS, PBE, ASME B36.19, L=100mm       | AS PIPE |
| 短管     | 15~40 | ASTM A312 TP304/304L, SMLS, TBE, MNPT, ASME B36.19, L=100mm | AS PIPE |
|        | 15~40 | ASTM A312 TP304/304L, SMLS, POEXTOE, ASME B36.19, L=100mm   | AS PIPE |

### FORGED FITTING 锻制管件

|                    |                   |                                               |
|--------------------|-------------------|-----------------------------------------------|
| ELBOW 90°<br>90°弯头 | 15~40             | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |
| ELBOW 45°<br>45°弯头 | 15~40             | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |
| TEE EQUAL<br>等径三通  | 15~40             | ASTM A182 F304/304L., SW, CL3000, ASME B16.11 |
| TEE REDU.          | 20 ~40      15~32 | ASTM A182 F304/304L., SW, CL3000,             |

|                                                                                   |                                           |     |      |            |                                                                                     |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                     |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                  | 2 |

| ITEM 名称                | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                               | SCH 壁厚  | NOTE 备注 |
|------------------------|-----------|-----------|--------------------------------------------------------------|---------|---------|
| 异径三通                   |           |           | ASME B16.11                                                  |         |         |
| COUPLING               | 15~40     |           | ASTM A182 F304/304L., SW, CL3000, ASME B16.11                |         |         |
| 等径管箍                   |           |           |                                                              |         |         |
| COUPLING REDU.         | 20 ~40    | 15~32     | ASTM A182 F304/304L., SW, CL3000, ASME B16.11                |         |         |
| 异径管箍                   |           |           |                                                              |         |         |
| CAP                    | 15~ 40    |           | ASTM A182 F304/304L., SW, CL3000, ASME B16.11                |         |         |
| 管帽                     |           |           |                                                              |         |         |
| SOCKOLET               | 50 ~ 650  | 15 ~ 40   | ASTM A182 F304/304L., SW, CL3000, MSS SP-97                  |         |         |
| 承插焊支管台                 |           |           |                                                              |         |         |
| WELDOLET               | 150 ~650  | 15 ~ 250  | ASTM A182 F304/304L., BE, MSS SP-97                          | AS PIPE |         |
| 对焊支管台                  |           |           |                                                              |         |         |
| <b>BW FITTING 对焊管件</b> |           |           |                                                              |         |         |
| ELBOW 90°              | 50 ~ 150  |           | ASTM A403 WP304/304L, LR, SMLS,BW,ASME B16.9                 | AS PIPE | 2       |
| 90°弯头                  |           |           |                                                              |         |         |
|                        | 200 ~ 650 |           | ASTM A403 WP304/304L-WX, LR, BW,ASME B16.9 With filler Metal | AS PIPE | 2       |
| ELBOW 45°              | 50 ~ 150  |           | ASTM A403 WP304/304L, LR, SMLS,BW,ASME B16.9                 | AS PIPE | 2       |
| 45° 弯头                 |           |           |                                                              |         |         |
|                        | 200 ~ 650 |           | ASTM A403 WP304/304L-WX, LR, BW,ASME B16.9 With filler Metal | AS PIPE | 2       |
| TEE EQUAL              | 50 ~ 150  |           | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9                   | AS PIPE | 2       |
| 等径三通                   |           |           |                                                              |         |         |
|                        | 200 ~ 650 |           | ASTM A403 WP304/304L-WX, BW, ASME B16.9 With filler Metal    | AS PIPE | 2       |
| TEE REDU.              | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9                   | AS PIPE | 2       |
| 异径三通                   |           |           |                                                              |         |         |
|                        | 200 ~ 650 | 100 ~ 600 | ASTM A403 WP304/304L-WX, BW, ASME B16.9 With filler Metal    | AS PIPE | 2       |
| REDUCER CON.           | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9                   | AS PIPE | 2       |

|                                                                                   |                                           |     |      |            |                                                                                     |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                     |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                  | 2 |

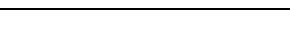
| ITEM 名称              | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                            | SCH 壁厚  | NOTE 备注 |
|----------------------|-----------|-----------|-----------------------------------------------------------|---------|---------|
| 同心异径管                | 200~650   | 100 ~ 600 | ASTM A403 WP304/304L-WX, BW, ASME B16.9 With filler Metal | AS PIPE | 2       |
| REDUCER<br>ECC.      | 80 ~ 150  | 50 ~ 100  | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9                | AS PIPE | 2       |
| 偏心异径管                | 200 ~ 650 | 100 ~ 600 | ASTM A403 WP304/304L-WX, BW, ASME B16.9 With filler Metal | AS PIPE | 2       |
| CAP<br>管帽            | 50 ~ 650  |           | ASTM A403 WP304/304L, SMLS, BW, ASME B16.9                | AS PIPE | 2       |
| CONC.SWAG<br>NIPPLE  | 20~40     | 15~25     | ASTM A403 WP304/304L, SMLS, PBE, MSS SP-95                | AS PIPE | 2       |
| 同心异径短节               | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXTSE, MSS SP-95            | AS PIPE | 2       |
|                      | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXPSE, MSS SP-95            | AS PIPE | 2       |
| ECC. SWAGE<br>NIPPLE | 20~100    | 15~25     | ASTM A403 WP304/304L, SMLS, PBE, MSS SP-95                | AS PIPE | 2       |
| 偏心异径短节               | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXTSE, MSS SP-95            | AS PIPE | 2       |
|                      | 50~100    | 15~40     | ASTM A403 WP304/304L, SMLS, BLEXPSE, MSS SP-95            | AS PIPE | 2       |
| <b>FFLANGE 法兰</b>    |           |           |                                                           |         |         |
| SW FLANGE<br>承插焊法兰   | 15 ~ 40   |           | ASTM A182 F304/304L, SW-RF, CL1500, ASME B16.5            | AS PIPE |         |
| WN FLANGE<br>对焊法兰    | 50 ~ 50   |           | ASTM A182 F304/304L, WN-RF, CL1500, ASME B16.5            | AS PIPE |         |
|                      | 80 ~ 600  |           | ASTM A182 F304/304L, WN-RF, CL900, ASME B16.5             | AS PIPE |         |
|                      | 650 ~ 650 |           | ASTM A182 F304/304L, WN-RF, CL900, ASME B16.47B           | AS PIPE |         |
| BL FLANGE            | 15 ~50    |           | ASTM A182 F304/304L, BL-RF, CL1500,                       |         |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称      | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                                                                                                                                                          | SCH 壁厚         | NOTE 备注 |
|--------------|-----------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|
| 盲法兰          |           |           | ASME B16.5                                                                                                                                                                                              |                |         |
|              | 80 ~ 600  |           | ASTM A182 F304/304L, BL-RF, CL900, ASME B16.5                                                                                                                                                           |                |         |
|              | 650 ~ 650 |           | ASTM A182 F304/304L, BL-RF, CL900, ASME B16.47B                                                                                                                                                         |                |         |
| BLIND DISC   | 15 ~ 50   |           | ASTM A240 304L, RF, CL1500, ASME B16.48                                                                                                                                                                 |                |         |
| 插板           |           |           |                                                                                                                                                                                                         |                |         |
|              | 80 ~ 600  |           | ASTM A240 304L, RF, CL900, ASME B16.48                                                                                                                                                                  |                |         |
| SPACER RING  | 15 ~ 50   |           | ASTM A240 304L, RF, CL1500, ASME B16.48                                                                                                                                                                 |                |         |
| 垫环           |           |           |                                                                                                                                                                                                         |                |         |
|              | 80 ~ 600  |           | ASTM A240 304L, RF, CL900, ASME B16.48                                                                                                                                                                  |                |         |
| FASTENER 紧固件 |           |           |                                                                                                                                                                                                         |                |         |
| BOLT/NUT     |           |           | A320 B8M CL.2/A194 8MA S1, ASME B18.31.2/ B18.2.2.                                                                                                                                                      |                |         |
| 全螺纹螺柱/厚型螺母   |           |           |                                                                                                                                                                                                         |                |         |
| GASKET 垫片    |           |           |                                                                                                                                                                                                         |                |         |
|              | 25 ~ 50   |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL1500, ASME B16.20, ASME B16.5                                                                           |                |         |
|              | 80 ~ 600  |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL900, ASME B16.20, ASME B16.5                                                                            |                |         |
|              | 650 ~ 650 |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL900, ASME B16.20, ASME B16.47B                                                                          |                |         |
| 阀门           |           |           |                                                                                                                                                                                                         |                |         |
| GATE VALVE   | 25 ~ 40   |           | Valve Gate Flanged Ends - ASME B16.5 Class 1500 - API 602 - Flanged Raised face - Handwheel with extended bonnet - Body: ASTM A182 F316/316L - API 600 Trim No. 16, Suitable for cryogenic service      | DZ41Y6-1500RAL |         |
| 闸阀           |           |           |                                                                                                                                                                                                         |                |         |
|              | 50~ 50    |           | Valve Gate Flanged Ends - ASME B16.5 Class 1500 - ASME B16.34 - Flanged Raised face - Handwheel with extended bonnet - Body: ASTM A351 CF8M - Trim: API 600 Trim No. 16, Suitable for cryogenic service | DZ41Y6-1500R2L |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称            | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                                                                     | DESCRIPTION 描述 | SCH 壁厚          | NOTE 备注 |
|--------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|---------|
|                    | 80~ 100   | Valve Gate Flanged Ends - ASME B16.5 Class 900 -ASME B16.34 - Flanged Raised face - Handwheel with extended bonnet - Body: ASTM A351 CF8M - API 600 Trim No. 16, Suitable for cryogenic service                                               |                | DZ41Y6-900R2L   |         |
|                    | 150~ 600  | Valve Gate Flanged Ends - ASME B16.5 Class 900 -ASME B16.34 - Flanged Raised face - Gear operator with extended bonnet - Body:ASTM A351 CF8M - API 600 Trim No. 16, Suitable for cryogenic service                                            |                | DZ540Y6-900R2L  |         |
|                    | 650~ 650  | Valve Gate Flanged Ends - ASME B16.47B Class 900 -ASME B16.34 - Flanged Raised face - Gear operator with extended bonnet - Body:ASTM A351 CF8M - API 600 Trim No. 16, Suitable for cryogenic service                                          |                | DZ540Y6-900R2BL |         |
| GLOBE VALVE<br>截止阀 | 25 ~ 40   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 1500 - BS5352 - Flanged Raised face - Handwheel with extended bonnet -Body: ASTM A182 F316/316L - Trim and Seat: -SS316 with Stellite 6 hardfaced, Suitable for cryogenic service |                | DJ41Y6-1500RAL  |         |
|                    | 50 ~ 50   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 1500 - BS1873 - Flanged Raised face - Handwheel with extended bonnet -Body: ASTM A351 CF8M - Trim and Seat: -SS316 with Stellite 6 hardfaced, Suitable for cryogenic service      |                | DJ41Y6-1500R2L  |         |
|                    | 80 ~ 80   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 900 - BS1873 - Flanged Raised face - Handwheel with extended bonnet -Body: ASTM A351 CF8M - Trim and Seat: -SS316 with Stellite 6 hardfaced, Suitable for cryogenic service       |                | DJ41Y6-900R2L   |         |
|                    | 100 ~150  | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 900 - BS1873 - Flanged Raised face - Gear operator with extended bonnet -Body: ASTM A351 CF8M - Trim and Seat: -SS316 with Stellite 6 hardfaced, Suitable for cryogenic service   |                | DJ541Y6-900R2L  |         |
| CHECK VALVE<br>止回阀 | 25 ~ 40   | Valve Lift Check Flanged Ends - ASME B16.5 Class 1500 - BS5352 - Flanged Raised face - Body: ASTM A182 F316/316L - Trim and Seat: -SS316 with Stellite 6 hardfaced Suitable for cryogenic service                                             |                | DH41Y6-1500RAL  |         |
|                    | 50~50     | Valve Dual Plate Check Wafer - ASME B16.5 Class 1500 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF8M - Trim and Seat: -SS316 or CF8M with Stellite 6 hardfaced Suitable for cryogenic service              |                | DH76Y6-1500R2L  |         |
|                    | 80~300    | Valve Dual Plate Check Wafer - ASME B16.5 Class 900 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF8M - Trim and Seat: -SS316 or CF8M with Stellite 6 hardfaced Suitable for cryogenic service               |                | DH76Y6-900R2L   |         |
|                    | 150~150   | Valve Swing Check - ASME B16.5 Class 900 – BS1868 / To be                                                                                                                                                                                     |                | DH44Y6-900R2L   |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称          | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                                                                                                                                                                                                                                                | SCH 壁厚            | NOTE 备注 |
|------------------|-----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------|
|                  |           |           | mounted between Raised face - Body: ASTM A351 CF8M - Trim and Seat: -SS316 or CF8M with Stellite 6 hardfaced Suitable for cryogenic service                                                                                                                                                   |                   |         |
| BALL VALVE<br>球阀 | 25 ~ 40   |           | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 1500 - API 6D - Flanged Raised face -Split body / Extended bonnet / Full bore / Floating ball- Wrench operated with extended bonnet - Body:ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat, Suitable for cryogenic service          | DQ41F8-1500R2L-F  |         |
|                  | 50 ~ 50   |           | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 1500 - API 6D - Flanged Raised face-Split body / Extended bonnet / Full bore / Trunnion mounted ball - Wrench operated with extendedbonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat, Suitable for cryogenic service  | DQ47F8-1500R2L-F  |         |
|                  | 80 ~ 80   |           | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 900 - API 6D - Flanged Raised face -Split body / Extended bonnet / Full bore / Trunnionmounted ball - Wrench operated with extendedbonnet - Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat, Suitable for cryogenic service   | DQ47F8-900R2L-F   |         |
|                  | 100 ~ 600 |           | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 900 - API 6D - Flanged Raised face -Split body / Extended bonnet / Full bore / Trunnion mounted ball - Gear operated with extended bonnet -Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat, Suitable for cryogenic service    | DQ347F8-900R2L-F  |         |
|                  | 650 ~ 650 |           | Valve Ball Flanged Ends Long Pattern - ASME B16.47 B Class 900 - API 6D - Flanged Raised face -Split body / Extended bonnet / Full bore / Trunnion mounted ball - Gear operated with extended bonnet -Body: ASTM A351 CF8M - Ball: ASTM A182 F316, PCTFE Seat, Suitable for cryogenic service | DQ347F8-900R2BL-F |         |

1. Wall thickness table.
2. Low temperature impact test shall be carried out at -196℃ according to ASME B31.3.
3. Requirement of GB/T12459 ANNEX B shall be met and for reducers GB/T12459 ANNEX B4.1 shall be met.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 9KC

BASIC MATERIAL 基本材料: Killed Carbon Steel  
 FLANGE RATING & FACING 压力等级及密封面: Class900 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 1.5 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: NG

|                          |       |       |       |       |       |       |  |  |  |  |  |  |  |
|--------------------------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38   | 50    | 100   | 150   | 200   | 250   |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 15.32 | 15.04 | 13.98 | 13.52 | 13.14 | 12.58 |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
| PIPE 管子 |           |           |                |        |         |

|         |                                  |   |
|---------|----------------------------------|---|
| 15~40   | A333 Gr.6, SMLS, PE, ASME B36.10 | 1 |
| 50~600  | A333 Gr.6, SMLS, BE, ASME B36.10 | 1 |
| 650~900 | A333 Gr.6, SMLS, BE, ASME B36.10 | 1 |

### NIPPLE 短管

|              |       |                                                  |         |
|--------------|-------|--------------------------------------------------|---------|
| NIPPLE<br>短管 | 15~40 | A333 Gr.6, SMLS, PBE, ASME B36.19, L=100mm       | AS PIPE |
|              | 15~40 | A333 Gr.6, SMLS, TBE, MNPT, ASME B36.19, L=100mm | AS PIPE |
|              | 15~40 | A333 Gr.6, SMLS, POEXTOE, ASME B36.19, L=100mm   | AS PIPE |

### FORGED FITTING 锻制管件

|                    |        |                                                     |
|--------------------|--------|-----------------------------------------------------|
| ELBOW 90°<br>90°弯头 | 25~40  | A350 Gr.LF2 CL.1, SW, CL6000, ASME B16.11           |
| ELBOW 45°<br>45°弯头 | 25~40  | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11          |
| TEE EQUAL<br>等径三通  | 25~40  | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11          |
| TEE REDU.<br>异径三通  | 25 ~40 | 20~25<br>A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |
| COUPLING           | 25~40  | A350 Gr.LF2 CL.1, SW, CL6000,, ASME                 |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称          | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                       | SCH 壁厚  | NOTE 备注 |
|------------------|-----------|-----------|----------------------------------------------------------------------|---------|---------|
| 等径管箍             |           |           | B16.11                                                               |         |         |
| COUPLING REDU.   | 25 ~40    | 20~25     | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11                           |         |         |
| 异径管箍             |           |           |                                                                      |         |         |
| CAP              | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11                           |         |         |
| 管帽               |           |           |                                                                      |         |         |
| SOCKOLET         | 50 ~ 900  | 25 ~ 40   | A350 Gr.LF2 CL.1, SW, CL6000,, MSS SP-97                             |         |         |
| 承插焊支管台           |           |           |                                                                      |         |         |
| WELDOLET         | 150 ~ 900 | 50 ~ 350  | A350 Gr.LF2 CL.1, BW, , MSS SP-97                                    | AS PIPE |         |
| 对焊焊支管台           |           |           |                                                                      |         |         |
| BW FITTING 对焊管件  |           |           |                                                                      |         |         |
| ELBOW 90°        | 50 ~ 600  |           | ASTM A420 Gr.WPL6, LR, SMLS, ASME B16.9                              | AS PIPE | 2       |
| 90°弯头            |           |           |                                                                      |         |         |
|                  | 650 ~ 900 |           | ASTM A420 Gr.WPL6, LR,SMLS, ASME B16.9                               | AS PIPE | 2       |
| ELBOW 45°        | 50 ~ 600  |           | ASTM A420 Gr.WPL6, LR, SMLS, ASME B16.9                              | AS PIPE | 2       |
| 45° 弯头           |           |           |                                                                      |         |         |
|                  | 650 ~ 900 |           | ASTM A420 Gr.WPL6, LR,SMLS, ASME B16.9                               | AS PIPE | 2       |
| TEE EQUAL        | 50 ~ 600  |           | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                                  | AS PIPE | 2       |
| 等径三通             |           |           |                                                                      |         |         |
|                  | 650 ~ 900 |           | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                                  | AS PIPE | 2       |
| BARRED TEE EQUAL | 900       |           | ASTM A420 Gr.WPL6, LR,SMLS, ASME B16.9, BARRED EQUAL TEE FOR PIGGING | AS PIPE | 3       |
| 通球等径三通           |           |           |                                                                      |         |         |
| TEE REDU.        | 80 ~ 600  | 50 ~ 500  | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                                  | AS PIPE | 2       |
| 异径三通             |           |           |                                                                      |         |         |
|                  | 650 ~ 900 | 350 ~ 800 | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                                  | AS PIPE | 2       |
| REDUCER CON.     | 80 ~ 600  | 50 ~ 500  | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                                  | AS PIPE | 2       |
| 同心异径管            |           |           |                                                                      |         |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                        | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                       | SCH 壁厚  | NOTE 备注 |
|--------------------------------|-----------|-----------|------------------------------------------------------|---------|---------|
| REDUCER<br>ECC.<br>偏心异径管       | 650 ~ 900 | 350 ~ 800 | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                  | AS PIPE | 2       |
|                                | 80 ~ 600  | 50 ~ 500  | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                  | AS PIPE | 2       |
|                                | 650 ~ 900 | 350 ~ 800 | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                  |         | 2       |
| CAP<br>管帽                      | 50 ~ 600  |           | ASTM A420 Gr.WPL6, SMLS, ASME B16.9                  | AS PIPE | 2       |
| CONC.SWAG<br>NIPPLE<br>同心异径短节  | 20~40     | 15~25     | ASTM A420 WPL6, SMLS, PBE, MSS SP-95                 | AS PIPE | 2       |
| ECC. SWAGE<br>NIPPLE<br>偏心异径短节 | 50~100    | 15~40     | ASTM A420 WPL6, SMLS, BLEXTSE,MSS<br>SP-95           | AS PIPE | 2       |
|                                | 50~100    | 15~40     | ASTM A420 WPL6, SMLS, BLEXPSE,MSS<br>SP-95           | AS PIPE | 2       |
|                                | 20~40     | 15~25     | ASTM A420 WPL6, SMLS, PBE, MSS SP-95                 | AS PIPE | 2       |
|                                | 50~100    | 15~40     | ASTM A420 WPL6, SMLS, BLEXTSE,MSS<br>SP-95           | AS PIPE | 2       |
|                                | 50~100    | 15~40     | ASTM A420 WPL6, SMLS, BLEXPSE,MSS<br>SP-95           | AS PIPE | 2       |
|                                | 50~50     | 15~40     | ASTM A403 WP304, SMLS, BLEXPSE,MSS<br>SP-95          | AS PIPE |         |
| FF LANGE 法兰                    |           |           |                                                      |         |         |
| SW FLANGE<br>承插焊法兰             | 25 ~ 40   |           | A350 Gr.LF2 CL.1, SW-RF, Class 1500,<br>ASME B16.5   |         |         |
| WN FLANGE<br>对焊法兰              | 50 ~ 50   |           | A350 Gr.LF2 CL.1, WN-RF, Class 1500,<br>ASME B16.5   | AS PIPE |         |
|                                | 80 ~ 600  |           | A350 Gr.LF2 CL.1, WN-RF, Class 900,<br>ASME B16.5    | AS PIPE |         |
|                                | 650 ~ 900 |           | A350 Gr.LF2 CL.1, WN-RF, Class 900,<br>ASME B16.47 B | AS PIPE |         |
| BL FLANGE                      | 25 ~ 50   |           | A350 Gr.LF2 CL.1, BL-RF,CL 1500,ASME<br>B16.5        |         |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                    | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                                                                                 | SCH 壁厚       | NOTE 备注 |
|----------------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------|--------------|---------|
| 盲法兰                        | 80 ~ 600  |           | A350 Gr.LF2 CL.1, BL-RF,CL 900,ASME B16.5                                                                                      |              |         |
|                            | 650 ~ 900 |           | A350 Gr.LF2 CL.1, BL-RF,CL 900,ASME B16.47 B                                                                                   |              |         |
| BLIND DISC<br>插板           | 25 ~ 600  |           | A516 Gr.70(S5 -46℃), RF, Class900, ASME B16.48                                                                                 |              |         |
| SPACER RING<br>垫环          | 25 ~ 600  |           | A516 Gr.70(S5 -46℃), RF, Class900, ASME B16.48                                                                                 |              |         |
| BLIND DISC<br>插板           | 650 ~ 900 |           | A516 Gr.70(S5 -46℃), RF, Class900, 非标                                                                                          |              |         |
| SPACER RING<br>垫环          | 650 ~ 900 |           | A516 Gr.70(S5 -46℃), RF, Class900, 非标                                                                                          |              |         |
| FASTENER 紧固件               |           |           |                                                                                                                                |              |         |
| BOLT/NUT<br>全螺纹螺柱/<br>厚型螺母 |           |           | A320 L7/A194-7L, Zinc Coating acc. to ASTM A153. , ASME B18.31.2/ B18.2.2.                                                     |              |         |
| GASKET 垫片                  |           |           |                                                                                                                                |              |         |
|                            | 25 ~ 50   |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL1500, ASME B16.20, ASME B16.5  |              |         |
|                            | 50 ~ 600  |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL900, ASME B16.20, ASME B16.5   |              |         |
|                            | 650 ~ 900 |           | Spiral Wounded Gasket, 316SS Wounded with Graphite filler, 316SS Inner Ring and out Ring, RF, CL900, ASME B16.20, ASME B16.47B |              |         |
| 阀门                         |           |           |                                                                                                                                |              |         |
| GATE VALVE<br>闸阀           | 25 ~ 40   |           | Valve Gate Flanged Ends - ASME B16.5 Class 1500 - API 602 - Flanged Raised face -Handwheel - Body: ASTM A350 LF2 - Trim No. 5  | Z41Y1-1500D1 |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称            | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                    | DESCRIPTION 描述 | SCH 壁厚         | NOTE 备注 |
|--------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------|
|                    | 50~ 50    | Valve Gate Flanged Ends - ASME B16.5 Class 1500 - API 600 - Flanged Raised face -Handwheel - Body: ASTM A352 LCC - Trim No. 5                                                                |                | Z40Y1-1500D5   |         |
|                    | 80~ 100   | Valve Gate Flanged Ends - ASME B16.5 Class 900 - API 600 - Flanged Raised face -Handwheel - Body: ASTM A352 LCC - Trim No. 5                                                                 |                | Z40Y1-900D5    |         |
|                    | 150~ 600  | Valve Gate Flanged Ends - ASME B16.5 Class 900 - API 600 - Flanged Raised face – Gear operator - Body: ASTM A352 LCC - Trim No.5                                                             |                | Z540Y1-900D5   |         |
|                    | 650~ 750  | Valve Gate Flanged Ends - ASME B16.47-B CL900 - API 600 - Flanged Raised face – Gear operator - Body: ASTM A352 LCC - Trim No. 16                                                            |                | Z540Y1-900D5B  |         |
| GLOBE VALVE<br>截止阀 | 25 ~ 40   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 1500 - BS5352 - Flanged Raised face - Handwheel - Body: ASTM A350 LF2 – API602 Trim 5                                            |                | J41Y1-1500D1   |         |
|                    | 50 ~ 50   | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 1500 - BS1873 - Flanged Raised face - Handwheel - Body: ASTM A352 LCC - API600 Trim 5                                            |                | J41Y1-1500D5   |         |
|                    | 80 ~ 80   | Valve Globe Flanged Ends Through Pattern - ASME B16.5 Class 900 - BS1873 - Flanged Raised face - Handwheel - Body: ASTM A352 LCC - API600 Trim 5                                             |                | J41Y1-900D5    |         |
|                    | 100 ~ 150 | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 900 - BS1873 - Flanged Raised face - Gear operator - Body: ASTM A352 LCC API600 Trim 5                                           |                | J541Y1-900D5   |         |
| CHECK VALVE<br>止回阀 | 25 ~ 40   | Valve Lift Check Flanged Ends - ASME B16.5 Class 1500 - BS5352 - Flanged Raised face - Body: ASTM A350 LF2 - API602 Trim 5                                                                   |                | H41Y1-1500D1   |         |
|                    | 50 ~ 50   | Valve Dual Plate Check Wafer - ASME B16.5 Class 1500 - API 594 - Double flanged / To be mounted between Raised face - Body: ASTM A352 LCC - API600 Trim 5                                    |                | H46Y1-1500D5   |         |
|                    | 80~600    | Valve Dual Plate Check Wafer - ASME B16.5 Class 900 - API 594 - Double flanged / To be mounted between Raised face - Body: ASTM A352 LCC- API600 Trim 5                                      |                | H46Y1-900D5    |         |
|                    | 650~750   | Valve Dual Plate Check Wafer - ASME B16.47-B Class 900 - API 594 - Double flanged / To be mounted between Raised face - Body: ASTM A352 LCC- API600 Trim 5                                   |                | H46Y1-900D5B   |         |
| BALL VALVE         | 25 ~ 50   | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 1500 - API 6D - Flanged Raised face - Split body / Full bore / Trunnion mounted ball – Wrench operated - Body: ASTM A352 LCC - Ball: |                | Q47F7-1500D5-F |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                                                                                                              | DESCRIPTION 描述 | SCH 壁厚           | NOTE 备注 |
|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|---------|
| 球阀      |           | ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat                                                                                                                                                                                                                                       |                |                  |         |
|         | 80 ~ 80   | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 900 - API 6D - Flanged Raised face - Split body/ Full bore / Trunnion mounted ball - Wrench operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat                                             |                | Q47F7-900D5-F    |         |
|         | 100 ~ 600 | Valve Ball Flanged Ends Long Pattern - ASME B16.5Class 900 - API 6D - Flanged Raised face- Split body/ Full bore / Trunnion mounted ball - Gear operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat                                                 |                | Q347F7-900D5-F   |         |
|         | 650       | Valve Ball Flanged Ends Long Pattern - ASME B16.47-B CL900 - API 6D - Flanged Raised face - Split body/ Full bore / Trunnion mounted ball - Gear operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, LF2+ENP+VITON Seal, DBB with drain and bleed functions a |                | Q347F7-900D5B-FB |         |
|         | 650 ~ 900 | Valve Ball Flanged Ends Long Pattern - ASME B16.47-B CL900 - API 6D - Flanged Raised face - Split body/ Full bore / Trunnion mounted ball - Gear operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat                                                |                | Q347F7-900D5B-F  |         |

1. WALL THICKNESS TABLE.
2. Requirement of GB/T12459 ANNEX B shall be met and for reducers GB/T12459 ANNEX B4.1 shall be met.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 9KCA

BASIC MATERIAL 基本材料: Killed Carbon Steel  
 FLANGE RATING & FACING 压力等级及密封面: Class900 RF  
 CORROSION ALLOWANCE 腐蚀裕度: 1.5 mm  
 STRESS RELIEF 焊后热处理: ASME B31.3 & GB50251  
 SERVICE 介质: NG

|                            |      |      |      |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|------|------|------|--|--|--|--|--|--|--|--|--|--|--|
| DESIGN TEMP. 设计温度.(°C):    | ≤38  | 50   | 100  |  |  |  |  |  |  |  |  |  |  |  |
| DESIGN PRESS. 设计压力. (MPa): | 13.9 | 13.9 | 13.9 |  |  |  |  |  |  |  |  |  |  |  |

| ITEM 名称                | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                             | SCH 壁厚 | NOTE 备注 |
|------------------------|-----------|-----------|--------------------------------------------|--------|---------|
| PIPE 管子                |           |           |                                            |        |         |
| 无缝钢管                   | 15~50     |           | A333 Gr.6, SMLS, PE, ASME B36.10           | 2      |         |
|                        | 750       |           | API 5L X65M PSL2, SAWL BE, ASME B36.10     | 32mm   |         |
|                        | 900       |           | API 5L X65M PSL2, SAWL, BE, ASME B36.10    | 38mm   |         |
| FORGED FITTING 锻制管件    |           |           |                                            |        |         |
| ELBOW 90°<br>90°弯头     | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000, ASME B16.11  |        |         |
| ELBOW 45°<br>45°弯头     | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |
| TEE EQUAL<br>等径三通      | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |
| TEE REDU.<br>异径三通      | 25 ~40    | 20~25     | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |
| COUPLING<br>等径管箍       | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |
| COUPLING REDU.<br>异径管箍 | 25 ~40    | 20~25     | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |
| CAP                    | 25~40     |           | A350 Gr.LF2 CL.1, SW, CL6000,, ASME B16.11 |        |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

管帽

SOCKOLET      50 ~ 900      25 ~ 40      A350 Gr.LF2 CL.1, SW, CL6000,, MSS SP-97

承插焊支管台

WELDOLET      150 ~ 900      50 ~ 350      A350 Gr.LF2 CL.1, BW, , MSS SP-97      AS PIPE

对焊焊支管台

#### BW FITTING 对焊管件

BEND 90°      750~900      API 5L X65M PSL2, SAWL, BW,R=6D,      同管道  
90°弯管      ASME B16.49 WITH TANGENT LENGTH  
500mm EACH END

ELBOW 90°      750~900      ASTM A860 WPHY65, SAWL, LR, BW, MSS      同管道  
90°弯头      SP-75

BARRED TEE      900      750      ASTM A860 WPHY65, SAWL, LR, BW, MSS      38\*32mm  
通球三通      SP-75 WITH BARS FOR PIGGING

#### FLANGE 法兰

SW FLANGE      25 ~ 40      A350 Gr.LF2 CL.1, SW-RF, Class 1500,  
承插焊法兰      ASME B16.5

WN FLANGE      50 ~ 50      A350 Gr.LF2 CL.1, WN-RF, Class 1500,      AS PIPE  
对焊法兰      ASME B16.5

80 ~ 600      ASTM A694 F65, WN-RF, Class 900, ASME      AS PIPE  
B16.5

650 ~ 900      ASTM A694 F65, WN-RF, Class 900,      AS PIPE  
ASME B16.47 B

BL FLANGE      25 ~ 50      A350 Gr.LF2 CL.1, BL-RF,CL 1500,ASME  
盲法兰      B16.5

80 ~ 600      ASTM A694 F65, BL-RF,CL 900,ASME  
B16.5

650 ~ 900      ASTM A694 F65, BL-RF,CL 900,ASME  
B16.47 B

#### 阀门

BALL      25 ~ 50      Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 1500 -      Q47F7-1500D5-F  
VALVE      API 6D - Flanged Raised face - Split body / Full bore / Trunnion  
球阀      mounted ball – Wrench operated - Body: ASTM A352 LCC - Ball:  
ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat

|                                                                                   |                                           |     |      |            |                                                                                                                                                                         |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |   |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                         |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                      | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                                                                                                                                                                                                                                                                               | SCH 壁厚         | NOTE 备注 |
|---------|-----------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|
| 750     |           |           | Valve Ball But Welding Ends Long Pattern - ASME B16.25 CL900 - API 6D – BW End with Pup Piece – Fully Welded body/ Full bore / Trunnion mounted ball - Gear operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat<br><br>Pup Piece: API 5L X65 PSL2, SMLS, BE, ASME B36.10, $\phi$ 914*36mm | Q367F7-900D5-F | 已采购     |
| 900     |           |           | Valve Ball Long Pattern – ASME B16.47-B CL900 - Flanged Raised face API 6D / Full bore / Trunnion mounted ball - Gear operated -Body: ASTM A352 LCC - Ball: ASTM A350 Gr.LF2 CL.1 + Nickel Plated, PEEK Seat<br><br>DBB                                                                                                      | Q347F7-900D5   |         |

注

1. 见壁厚表

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1GRC

BASIC MATERIAL 基本材料: Cu/Ni Alloy + GRV  
 FLANGE RATING & FACING 压力等级及密封面: Class150 FF  
 CORROSION ALLOWANCE 腐蚀裕度: 0  
 STRESS RELIEF 焊后热处理: ASME B31.3  
 SERVICE 介质: SWS

|                          |     |     |     |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38 | 50  | 60  |  |  |  |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 0.7 | 0.7 | 0.7 |  |  |  |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                                                                | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|-------------------------------------------------------------------------------|--------|---------|
| PIPE 管子 |           |           |                                                                               |        |         |
|         | 15~40     |           | ASTM B466 UNS C70600 ANNEALED, SMLS, PE, ASME B36.19                          | 1      |         |
|         | 50~100    |           | ASTM B466 UNS C70600 ANNEALED, SMLS, BE, ASME B36.19                          | 1      |         |
|         | 150~1500  |           | GRV VINYLESTER,PE, FILAMENT WOUNDED 7bar, MFTR STD, Hand Laminated Connection | 2      |         |
|         | 25~80     |           | GRV VINYLESTER,PE, FILAMENT WOUNDED 7b, MFTR STD, Hand Laminated Connection   | 2      | 5       |

### FORGED FITTING 锻制管件

|                    |       |       |                                                        |
|--------------------|-------|-------|--------------------------------------------------------|
| ELBOW 90°<br>90°弯头 | 15~40 |       | ASTM B151 UNS C70600 ANNEALED, SW, CL3000, ASME B16.11 |
| ELBOW 45°<br>45°弯头 | 15~40 |       | ASTM B151 UNS C70600 ANNEALED, SW, CL3000, ASME B16.11 |
| TEE EQUAL<br>等径三通  | 15~40 |       | ASTM B151 UNS C70600 ANNEALED, SW, CL3000, ASME B16.11 |
| TEE REDU.<br>异径三通  | 20~40 | 15~32 | ASTM B151 UNS C70600 ANNEALED, SW, CL3000, ASME B16.11 |
| COUPLING<br>等径管箍   | 15~40 |       | ASTM B151 UNS C70600 ANNEALED, SW, CL3000, ASME B16.11 |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
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|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                       | NPS 尺寸(L)  | NPS 尺寸(S) | DESCRIPTION 描述                                                                | SCH 壁厚  | NOTE 备注 |
|-------------------------------|------------|-----------|-------------------------------------------------------------------------------|---------|---------|
| COUPLING<br>REDU.<br><br>异径管箍 | 20~40      | 15~32     | ASTM B151 UNS C70600 ANNEALED, SW,<br>CL3000, ASME B16.11                     |         |         |
| CAP<br><br>管帽                 | 20~40      |           | ASTM B151 UNS C70600 ANNEALED, SW,<br>CL3000, ASME B16.11                     |         |         |
| SOCKOLET<br><br>承插焊支管台        | 50 ~ 100   | 15 ~ 40   | ASTM B151 UNS C70600 ANNEALED, SW,<br>CL3000, MFTR-STD                        |         |         |
| BW FITTING 对焊管件               |            |           |                                                                               |         |         |
| ELBOW 90°<br><br>90°弯头        | 50 ~ 100   |           | ASTM B466 UNS C70600 ANNEALED, LR,<br>SMLS,BW,ASME B16.9                      | AS PIPE |         |
|                               | 150 ~ 1500 |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| ELBOW 45°<br><br>45° 弯头       | 50 ~ 100   |           | ASTM B466 UNS C70600 ANNEALED, LR,<br>SMLS,BW,ASME B16.9                      | AS PIPE |         |
|                               | 150 ~ 1500 |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| TEE EQUAL<br><br>等径三通         | 50 ~ 100   |           | ASTM B466 UNS C70600 ANNEALED,<br>SMLS,BW,ASME B16.9                          | AS PIPE |         |
|                               | 150 ~ 1500 |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| TEE REDU.<br><br>异径三通         | 50 ~ 100   |           | ASTM B466 UNS C70600 ANNEALED,<br>SMLS,BW,ASME B16.9                          | AS PIPE |         |
|                               | 150 ~ 1500 |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| REDUCER<br>CON.<br><br>同心异径管  | 50 ~ 100   |           | ASTM B466 UNS C70600 ANNEALED,<br>SMLS,BW,ASME B16.9                          | AS PIPE |         |
|                               | 150 ~ 1500 |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
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|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                      | NPS 尺寸(L)      | NPS 尺寸(S) | DESCRIPTION 描述                                                                | SCH 壁厚  | NOTE 备注 |
|------------------------------|----------------|-----------|-------------------------------------------------------------------------------|---------|---------|
| REDUCER<br>ECC.<br><br>偏心异径管 | 50 ~ 100       |           | ASTM B466 UNS C70600 ANNEALED,<br>SMLS,BW,ASME B16.9                          | AS PIPE |         |
|                              | 150 ~ 1500     |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| CAP<br><br>管帽                | 50 ~ 100       |           | ASTM B466 UNS C70600 ANNEALED,<br>SMLS, BW, ASME B16.9                        | AS PIPE |         |
|                              | 150 ~ 1500     |           | GRV VINYLESTER PE Filament Wound<br>GRV-MFTR-STD Hand Laminated<br>Connection | AS PIPE |         |
| FLANGE 法兰                    |                |           |                                                                               |         |         |
| SW FLANGE<br><br>承插焊法兰       | 15 ~ 40        |           | ASTM B466 UNS C70600 ANNEALED,<br>SW-FF, CL150, ASME B16.5                    |         |         |
| LJ FLANGE<br><br>对焊环松套法兰     | 50~100         |           | A105/ASTM B466 UNS C70600<br>ANNEALED, LJ-RF, CL150, ASME B16.5               | AS PIPE |         |
| WN FLANGE<br><br>对焊法兰        | 15 ~ 600       |           | GRV VINYLESTER, FF, PE, 7Bars, MATCH<br>ASME B16.5                            | AS PIPE |         |
|                              | 700 ~ 800      |           | GRV VYLESTER, FF, PE, 7 Bars, MATCH<br>EN1092.1 PN10                          | AS PIPE |         |
|                              | 1500 ~<br>1500 |           | GRV VINYLESTER, RJ, PE, 7 Bars, MATCH<br>EN1092.1 PN10                        |         |         |
| BL FLANGE<br><br>盲法兰         | 15 ~ 100       |           | ASTM B466 UNS C70600 ANNEALED,<br>BL-RF, CL150, ASME B16.5                    |         |         |
|                              | 150 ~ 600      |           | GRV, BL-FF, 7 Bars, MATCH ASME B16.5<br>CL150                                 |         |         |
|                              | 700 ~ 800      |           | GRV, BL-FF, 7 Bars, MATCH EN1092.1<br>PN10                                    |         |         |
|                              | 1500           |           | GRV, BL-RJ, 7 Bars, MATCH EN1092.1<br>PN10                                    |         |         |
| FASTENER 紧固件                 |                |           |                                                                               |         |         |
| BOLT/NUT<br><br>全螺纹螺栓/       |                |           | A193 B7/A194-2H, Zinc Coating acc. to<br>ASTM A153. , ASME B18.31.2/ B18.2.2. |         |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
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|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

厚型螺母

#### GASKET 垫片

|           |                                                                                   |
|-----------|-----------------------------------------------------------------------------------|
| 15 ~ 100  | HIGH PERFORMANCE NITRILE RUBBER,<br>RF, Class150, ASME B16.21, For ASME<br>B16.5. |
| 15 ~ 600  | HIGH PERFORMANCE NITRILE RUBBER,<br>FF, Class150, ASME B16.21, For ASME<br>B16.5. |
| 650 ~ 800 | HIGH PERFORMANCE NITRILE RUBBER,<br>FF, PN10, EN1092.1                            |
| 1500      | HIGH PERFORMANCE NITRILE RUBBER,<br>Oval, RJ, PN10, EN1092.1                      |

#### 阀门

|                       |            |                                                                                                                                                                                            |              |
|-----------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| GATE VALVE<br>闸阀      | 15 ~ 40    | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised face -Handwheel - Body: ASTM A182 F53, Trim: ASTM A182 F53                                                    | Z41S3-150S3  |
|                       | 50 ~ 100   | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised Face -Handwheel - Body: ASTM A890 Gr.5A - Trim: ASTM A890 Gr.5A or A182 F53                                   | Z40S3-150S4  |
| Butterfly VALVE<br>蝶阀 | 80 ~ 150   | Valve Butterfly Wafer Concentric Design -EN1092.1 PN10 - Wafer Type / To be mounted between Flat face -Wrench operated - Body: ASTM A216 WCB - Trim: ASTM A890 5A ,Rubber Lined            | D71X7-10C2F  |
|                       | 200 ~ 1500 | Valve Butterfly Double Flanged Concentric Design -EN1092.1 PN10 - Double Flanged / To be mounted between Flat face -Gear operated - Body: ASTM A216 WCB - Trim: ASTM A890 5A ,Rubber Lined | D341X7-10C2F |

1. Thickness Table.
2. The wall thikness of GRV shall be define by the supplier
3. The stiffness of pipes should meet the laying requirements of buried pipelines.
4. UV protection measures should be considered during transportation, site storage and construction and installation.
5. For Branch Connection.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
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|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1PVC

BASIC MATERIAL 基本材料: PVC-U  
 FLANGE RATING & FACING 压力等级及密封面: 重力流  
 CORROSION ALLOWANCE 腐蚀裕度: 0 mm  
 STRESS RELIEF 焊后热处理:  
 SERVICE 介质: CWD

|                          |     |    |    |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------|-----|----|----|--|--|--|--|--|--|--|--|--|--|--|
| DESIGNTEMP.设计温度.(°C):    | ≤38 | 50 | 60 |  |  |  |  |  |  |  |  |  |  |  |
| DESIGN PRESS.设计压力.(MPa): | 0   | 0  | 0  |  |  |  |  |  |  |  |  |  |  |  |

| ITEM 名称     | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述                   | SCH 壁厚 | NOTE 备注 |
|-------------|-----------|-----------|----------------------------------|--------|---------|
| PIPE 管子     |           |           |                                  |        |         |
| 非金属管        | 25 ~ 200  |           | PVC-U 排水管, 承插粘接, GB/T5836.1-2019 |        | 水平管用    |
| 非金属管        | 25 ~ 200  |           | PVC-U 螺旋排水管, 承插粘接, T/CECS94-2019 |        | 立管用     |
| FITTING 管件  |           |           |                                  |        |         |
| 90° 弯头      | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 45° 弯头      | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 90° 顺水三通    | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 90° 带插口顺水三通 | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 45° 斜三通     | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 45° 带插口斜三通  | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 90° 正四通     | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 90° 带插口正四通  | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 45° 斜四通     | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 45° 带插口斜四通  | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 偏心异径管       | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |
| 直通          | 25 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018     |        | 水平管用    |

|                                                                                   |                                           |     |      |            |                                                                                     |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|-------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                     |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                  | 2 |

| ITEM 名称     | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述               | SCH 壁厚 | NOTE 备注 |
|-------------|-----------|-----------|------------------------------|--------|---------|
| 中心横向进水型三通   | 65 ~ 200  |           | PVC-U, 承插粘接, GB/T5836.2-2018 |        | 立管用     |
| 中心横向对称进水型四通 | 100 ~ 200 |           | PVC-U, 承插粘接, GB/T5836.2-2018 |        | 立管用     |
| 中心横向直角进水型四通 | 100 ~ 200 |           | PVC-U, 承插粘接, GB/T5836.2-2018 |        | 立管用     |

1. 管长 4 米.

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## PIPE CLASS 管道等级: 1SRPE

|                                  |                                    |
|----------------------------------|------------------------------------|
| BASIC MATERIAL 基本材料:             | Steel Mesh Reinforced PE (PE 钢骨架管) |
| FLANGE RATING & FACING 压力等级及密封面: | Class150 FF                        |
| CORROSION ALLOWANCE 腐蚀裕度:        | 0                                  |
| STRESS RELIEF 焊后热处理:             | NA                                 |
| SERVICE 介质:                      | FW                                 |

|                           |     |     |     |      |      |  |  |  |  |  |  |  |  |  |
|---------------------------|-----|-----|-----|------|------|--|--|--|--|--|--|--|--|--|
| DESIGN TEMP. 设计温度.(°C):   | ≤20 | 30  | 40  | 50   | 60   |  |  |  |  |  |  |  |  |  |
| DESIGN PRESS. 设计压力.(MPa): | 2.0 | 1.9 | 1.8 | 1.72 | 1.62 |  |  |  |  |  |  |  |  |  |

| ITEM 名称 | NPS 尺寸(L) | NPS 尺寸(S) | DESCRIPTION 描述 | SCH 壁厚 | NOTE 备注 |
|---------|-----------|-----------|----------------|--------|---------|
|---------|-----------|-----------|----------------|--------|---------|

### PIPE 管子

|        |                                             |      |
|--------|---------------------------------------------|------|
| 15~40  | HDPE (PE100), GB/T13663, PE                 | SDR9 |
| 50~500 | 钢骨架 PE 塑料复合, 平口, 电熔连接, 2.0MPa, CJ/T123-2016 | 1    |

### PE FITTING PE 管件

|                        |       |       |                                          |     |
|------------------------|-------|-------|------------------------------------------|-----|
| ELBOW 90°<br>90°弯头     | 15~40 |       | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| ELBOW 45°<br>45°弯头     | 15~40 |       | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| TEE EQUAL<br>等径三通      | 15~40 |       | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| TEE REDU.<br>异径三通      | 20~40 | 15~32 | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| COUPLING<br>等径管箍       | 15~40 |       | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| COUPLING REDU.<br>异径管箍 | 20~40 | 15~32 | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |
| CAP<br>管帽              | 20~40 |       | HDPE (PE100), 电熔连接, GB/T13663.3-2018, 承口 | 同管道 |

### STEEL REINFORCED PE FITTING PE 钢骨架管件

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称                    | NPS 尺寸(L) | NPS 尺寸(S)                                                                                             | DESCRIPTION 描述                                                                    | SCH 壁厚      | NOTE 备注 |
|----------------------------|-----------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------|---------|
| ELBOW 90°<br>90°弯头         | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, 2.0MPa, CJ/T124-2016, 锥形插口                                      |             |         |
| ELBOW 45°<br>45° 弯头        | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, 2.0MPa, CJ/T124-2016, 锥形插口                                      |             |         |
| TEE EQUAL<br>等径三通          | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, 2.0MPa, CJ/T124-2016, 锥形插口                                      |             |         |
| TEE REDU.<br>异径三通          | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, 2.0MPa, CJ/T124-2016, 锥形插口                                      |             |         |
| REDUCER CON.<br>同心异径管      | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, 2.0MPa, CJ/T124-2016, 锥形插口                                      |             |         |
| FULL COUPLING<br>电熔套筒      | 50 ~ 500  |                                                                                                       | 钢骨架 PE 塑料复合,电熔连接, AS PIPE CJ/T124-2016, 锥形双承口                                     |             |         |
| FFLANGE 法兰                 |           |                                                                                                       |                                                                                   |             |         |
| 电熔松套法兰                     | 15 ~ 40   |                                                                                                       | HDPE (PE100)/20 WN-FF, 2.0MPa, 连接 CL150 ASME B16.5 (开孔与管子外径相配)                    |             |         |
| 电熔松套法兰                     | 50~500    |                                                                                                       | 钢骨架 PE 塑料复合/20, PJ-RF, 2.0MPa, CJ/T124-2016, 连接尺寸按照 CL150, ASME B16.5 (开孔与管子外径相配) |             |         |
| FASTENER 紧固件               |           |                                                                                                       |                                                                                   |             |         |
| BOLT/NUT<br>全螺纹螺柱/<br>厚型螺母 |           |                                                                                                       | A193 B7/A194-2H, Zinc Coating acc. to ASTM A153. , ASME B18.31.2/ B18.2.2.        |             |         |
| GASKET 垫片                  |           |                                                                                                       |                                                                                   |             |         |
|                            | 15 ~ 500  |                                                                                                       | HIGH PERFORMANCE NITRILE RUBBER, RF, Class150, ASME B16.21, For ASME B16.5.       |             |         |
| 阀门                         |           |                                                                                                       |                                                                                   |             |         |
| GATE VALVE                 | 15 ~ 40   | Valve Gate Socket-welding Ends –Class 800 – API602 - Handwheel -Body: ASTM A182 F316L - Trim: -SS316L |                                                                                   | Z51R3-800R3 |         |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| ITEM 名称     | NPS 尺寸(L) | NPS 尺寸(S)                                                                                                                                                                                       | DESCRIPTION 描述 | SCH 壁厚         | NOTE 备注 |
|-------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------|
| 闸 阀         |           |                                                                                                                                                                                                 |                |                |         |
|             | 50 ~ 300  | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised face - Handwheel - Body: ASTM A351 CF3M - Trim SS316L                                                              |                | Z40R3-150R4    |         |
|             | 350 ~ 500 | Valve Gate Flanged Ends - ASME B16.5 Class 150 -ASME B16.34 - Flanged Raised face –Gear operator - Body: ASTM A351 CF3M - Trim SS316L                                                           |                | Z540R3-150R4   |         |
| GLOBE VALVE | 15 ~ 40   | Valve Globe Socket-welding Ends –Class 800 – API602 - Handwheel -Body: ASTM A182 F316L- Trim: -SS316L                                                                                           |                | J51R3-800R3    |         |
| 截 止 阀       |           |                                                                                                                                                                                                 |                |                |         |
|             | 50 ~ 150  | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Handwheel -Body: ASTM A351 CF3M - Trim: -SS316L                                                |                | J41R3-150R4    |         |
|             | 200 ~ 200 | Valve Globe Flanged Ends Through Pattern – ASME B16.5 Class 150 - BS1873 - Flanged Raised face - Gear operator -Body: ASTM A351 CF3M - Trim: -SS316L                                            |                | J341R3-150R4   |         |
| CHECK VALVE | 15 ~ 40   | Valve Lift Check Socket-welding Ends - Class 800 – API602 - Body: ASTM A182 F316L - Trim: - SS316L                                                                                              |                | H51R3-800R3    |         |
| 止 回 阀       |           |                                                                                                                                                                                                 |                |                |         |
|             | 50 ~ 500  | Valve Dual Plate Check Wafer - ASME B16.5 Class 150 - API 594 - Lugged type / To be mounted between Raised face - Body: ASTM A351 CF3M - Trim: SS316L                                           |                | H76R3-150R4    |         |
| BALL VALVE  | 15 ~ 150  | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body/ Reduced bore/Floating ball - Wrench operated- Body: ASTM A351 CF3M - Trim: SS316L/PTFE |                | Q41F8-150R4-R  |         |
| 球 阀         | 200 ~ 500 | Valve Ball Flanged Ends Long Pattern - ASME B16.5 Class 150 - BS5351 - Flanged Raised face - Split body/ Reduced bore/Floating ball - Gear operator - Body: ASTM A351 CF3M - Trim: SS316L/PTFE  |                | Q341F8-150R4-R |         |

注:

1. 管子与管件的连接采用电熔承插焊连接。
2. 管子与管子、管子与法兰的连接采用电熔承插套筒连接。

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

## WALL THICKNESS TABLE 壁厚表

注: 本项目不接受壁厚负偏差

| DN   | Pipe<br>O.D | Pipe Class |  |       |      |       |      |       |      |
|------|-------------|------------|--|-------|------|-------|------|-------|------|
|      |             |            |  | 1GRC  |      | 1KC   |      | 1CG   |      |
| 15   | 21.3        |            |  | S-80S | 3.73 | S-XS  | 3.73 | S-XXS | 7.47 |
| 20   | 26.7        |            |  | S-80S | 3.91 | S-XS  | 3.91 | S-160 | 5.56 |
| 25   | 33.4        |            |  | S-80S | 4.55 | S-XS  | 4.55 | S-80  | 4.55 |
| 40   | 48.3        |            |  | S-80S | 5.08 | S-XS  | 5.08 | S-80  | 5.08 |
| 50   | 60.3        |            |  | S-80S | 5.54 | S-STD | 3.91 | S-STD | 3.91 |
| 80   | 88.9        |            |  | S-80S | 7.62 | S-STD | 5.49 |       |      |
| 100  | 114.3       |            |  | S-80S | 8.56 | S-STD | 6.02 |       |      |
| 150  | 168.3       |            |  |       |      | S-STD | 7.11 |       |      |
| 200  | 219.1       |            |  |       |      | S-20  | 6.35 |       |      |
| 250  | 273.1       |            |  |       |      | S-20  | 6.35 |       |      |
| 300  | 323.8       |            |  |       |      | S-20  | 6.35 |       |      |
| 350  | 355.6       |            |  |       |      |       |      |       |      |
| 400  | 406.4       |            |  |       |      |       |      |       |      |
| 450  | 457         |            |  |       |      |       |      |       |      |
| 500  | 508         |            |  |       |      |       |      |       |      |
| 600  | 610         |            |  |       |      |       |      |       |      |
| 700  | 711         |            |  |       |      |       |      |       |      |
| 750  | 762         |            |  |       |      |       |      |       |      |
| 800  | 813         |            |  |       |      |       |      |       |      |
| 850  | 864         |            |  |       |      |       |      |       |      |
| 900  | 914         |            |  |       |      |       |      |       |      |
| 950  | 965         |            |  |       |      |       |      |       |      |
| 1000 | 1016        |            |  |       |      |       |      |       |      |
| 1050 | 1067        |            |  |       |      |       |      |       |      |
| 1100 | 1118        |            |  |       |      |       |      |       |      |
| 1150 | 1168        |            |  |       |      |       |      |       |      |
| 1200 | 1219        |            |  |       |      |       |      |       |      |
| 1400 | 1422        |            |  |       |      |       |      |       |      |
| 1500 | 1524        |            |  |       |      |       |      |       |      |
| 1600 | 1626        |            |  |       |      |       |      |       |      |
| 1800 | 1829        |            |  |       |      |       |      |       |      |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石炼化 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| DN   | Pipe<br>O.D | Pipe Class          |      |       |       |       |       |       |      |
|------|-------------|---------------------|------|-------|-------|-------|-------|-------|------|
|      |             | 1SS<br>1SSP<br>1SSW |      | 9SS   |       | 9KC   |       | 9KCA  |      |
| 15   | 21.3        | S-40S               | 2.77 | S-80S | 3.73  | S-160 | 4.78  | S-160 | 4.78 |
| 20   | 26.7        |                     | 2.87 | S-80S | 3.91  | S-160 | 5.56  | S-160 | 5.56 |
| 25   | 33.4        |                     | 3.38 | S-80S | 4.55  | S-160 | 6.35  | S-160 | 6.35 |
| 40   | 48.3        |                     | 3.68 | S-80S | 5.08  | S-160 | 7.14  | S-160 | 7.14 |
| 50   | 60.3        |                     | 3.91 | S-40S | 3.91  | S-XS  | 5.54  | S-XS  | 5.54 |
| 65   | 73.0        | S-10S               | 3.05 |       |       |       |       |       |      |
| 80   | 88.9        |                     | 3.05 | S-40S | 5.49  | S-XS  | 7.62  |       |      |
| 100  | 114.3       |                     | 3.05 | S-80S | 8.56  | S-XS  | 8.56  |       |      |
| 150  | 168.3       |                     | 3.40 | S-80S | 10.97 | S-120 | 14.27 |       |      |
| 200  | 219.1       |                     | 3.76 | S-100 | 15.09 | S-100 | 15.09 |       |      |
| 250  | 273.1       |                     | 4.19 | S-100 | 18.26 | S-100 | 18.26 |       |      |
| 300  | 323.8       |                     | 4.57 | S-100 | 21.44 | S-100 | 21.44 |       |      |
| 350  | 355.6       |                     | 4.78 | S-100 | 23.83 | S-100 | 23.83 |       |      |
| 400  | 406.4       |                     | 4.78 | S-100 | 26.19 | S-100 | 26.19 |       |      |
| 450  | 457         |                     | 4.78 | S-100 | 29.36 | S-100 | 29.36 |       |      |
| 500  | 508         |                     | 5.54 | S-100 | 32.54 | S-100 | 32.54 |       |      |
| 600  | 610         |                     | 6.35 | S-100 | 38.89 | S-100 | 38.89 |       |      |
| 650  | 660         |                     |      |       | 41.43 |       | 41.43 |       |      |
| 700  | 711         |                     |      |       | 41.43 |       | 44.52 |       |      |
| 750  | 762         |                     |      |       | 44.52 |       | 47.62 |       | 32   |
| 800  | 813         |                     |      |       |       |       | 50.71 |       |      |
| 850  | 864         |                     |      |       |       |       |       |       |      |
| 900  | 914         |                     |      |       |       |       | 56.84 |       | 38   |
| 950  | 965         |                     |      |       |       |       |       |       |      |
| 1000 | 1016        |                     |      |       |       |       |       |       |      |
| 1050 | 1067        |                     |      |       |       |       |       |       |      |
| 1100 | 1118        |                     |      |       |       |       |       |       |      |
| 1150 | 1168        |                     |      |       |       |       |       |       |      |
| 1200 | 1219        |                     |      |       |       |       |       |       |      |
| 1400 | 1422        |                     |      |       |       |       |       |       |      |
| 1500 | 1524        |                     |      |       |       |       |       |       |      |
| 1600 | 1626        |                     |      |       |       |       |       |       |      |
| 1800 | 1829        |                     |      |       |       |       |       |       |      |

|                                                                                   |                                           |     |      |            |                                                                                                                                                                                 |   |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----|------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|  | 项目代码                                      | TRM | 项目简称 | 接收站可靠性改造项目 |  <br>中石化建 |   |
|                                                                                   | 文件编号: GDLNG-PJ-TRM-DD-000-PIP-10.04-10002 |     |      |            |                                                                                                                                                                                 |   |
|                                                                                   | 文件名称: 管道材料等级表 Piping Material Class       |     |      |            | 版次                                                                                                                                                                              | 2 |

| DN  | Pipe I.D | Pipe O.D | Pipe Class |  |  |  |  |  |  |  |
|-----|----------|----------|------------|--|--|--|--|--|--|--|
|     |          |          | 1SRPE      |  |  |  |  |  |  |  |
| 15  |          | 20       | 2.3        |  |  |  |  |  |  |  |
| 20  |          | 25       | 3.0        |  |  |  |  |  |  |  |
| 25  |          | 32       | 3.6        |  |  |  |  |  |  |  |
| 32  |          | 40       | 4.5        |  |  |  |  |  |  |  |
| 40  |          | 50       | 5.6        |  |  |  |  |  |  |  |
| 50  | 50       |          | 9          |  |  |  |  |  |  |  |
| 65  | 65       |          | 9          |  |  |  |  |  |  |  |
| 80  | 80       |          | 9          |  |  |  |  |  |  |  |
| 100 | 100      |          | 9          |  |  |  |  |  |  |  |
| 125 | 125      |          | 10         |  |  |  |  |  |  |  |
| 150 | 150      |          | 12         |  |  |  |  |  |  |  |
| 200 | 200      |          | 12.5       |  |  |  |  |  |  |  |
| 250 | 250      |          | 12.5       |  |  |  |  |  |  |  |
| 300 | 300      |          | 12.5       |  |  |  |  |  |  |  |
| 350 | 350      |          | 15.5       |  |  |  |  |  |  |  |
| 400 | 400      |          | 15.5       |  |  |  |  |  |  |  |
| 450 | 450      |          | 16.5       |  |  |  |  |  |  |  |
| 500 | 500      |          | 16.5       |  |  |  |  |  |  |  |











