



KPD-TAY COMPRESSION PROJECT
Tender Enquiry No.: PROC/FC/PROJ/KPD-TAY/COMP/5313/2022
PRE-BID CLARIFICATION # 39



One of the bidder has asked following queries, OGDC/ENAR's response is as follows:

| Sr. | Reference | Description | Clarification By bidder | OGDC/ENAR Response | Clarification By bidder | OGDC/ENAR Response | Clarification By bidder | OGDC/ENAR Response | NOTES | |
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| | compressor packager | | | | | | | | | |
| 1 | 1- Volume-III (Process)6- Datasheets/0258-DS-1000-0 (DS of Nodal Compressor at Thora Deep-3 GGS) | PA/P22 CASE 1/CASE 2/CASE 3 OPERATING CONDITION SUCTION TEMPERATURE 140F, RATED CONDITION SUCTION TEMPERATURE 150 F | 1. Please clarify whether the temperature 140F/150F refer to the suction of compressor (after pre-cooling) or refer to the temperature at the suction of pre-cooling. 2. If the temperature 140F/150F refer to the temperature at the suction of pre-cooling, the compressor has the ability to compress the 140/150F gas directly to meet the customer performance requirement, the pre-cooling is not needed, bidder will double check at detail engineering stage. If pre-cooling is not needed, bidder won't provide pre-cooler please confirm. | 1- The referred temperature is at suction of pre-cooling (i.e. at upstream of compressor package inlet battery limit). 2- Bidder to note that minimum requirements are shown in the provided P&IDs and it shall further be finalized after termed detailed engineering by EPCC Contractor during detailed engineering stage. | | | | | | |
| 2 | 1- Volume-III (Process)6- Datasheets/0258-DS-1000-0 (DS of Nodal Compressor at Thora Deep-3 GGS) | PA/P22 MINIMUM NO. OF STAGES REQUIRED ARE MENTIONED, HOWEVER, VENDOR SHALL PROVIDE THE COMPRESSOR PACKAGE CONSIDERING THE WHOLE OPERATING ENVELOPE, LOW AND HIGH COMPRESSION RATIO ACCORDINGLY WITH NO MODIFICATION REQUIRED AT FIELD. FURTHER, VENDOR SHALL PROVIDE ONE ADDITIONAL RUN AT 100 PSIA SUCTION PRESSURE | 1. Whether the unit needs to be designed according to the settle out pressure (blance pressure) i.e. the unit should back flow first by using recycle valve and then blow down when the compressor shut down. 2. Case1=800psig case2=535psig case3=185psig. When the suction pressure is high, the unit will have a back flow according to the compressor selection. Please clarify whether the bidder can reduce the suction pressure to meet the flow rate requirement according to the actual situation. 3. It is required to check the working condition when the suction pressure is 100psia. The suction pressure 100 psia is not the input parameter of compressor selection. If the discharge pressure of the unit remains unchanged, the minimum no. stages of the unit will increase or the discharge temperature will be high which may lead to shut down of compressor. It is suggested that the bidder recommend the actual discharge pressure and capacity when the suction pressure is 100 psia based on the three case compressor selection please confirm. Please reply the above three items one by one, thank you | 1- This shall be reviewed and finalized during detailed engineering stage. 2- Bidder to follow conditions and cases for compressor units already mentioned in tender document. 3- Please note that the selection of compressors shall be done considering the conditions and cases stipulated in the datasheets of each compressor package. As far as an additional run at 100 psia suction is concerned, please note that this additional run shall be required for the selected machine (selection based on conditions & Cases mentioned in Compressor Datasheets). | 1. Please confirm that we need to consider the system material selection and design such as the valve selection, pipeline and vessel design pressure etc. based on the settle out pressure, and need to consider the compressor sizing based on the settle out pressure. 2. Please make sure the suction pressure is 100psia not 100psig, as mentioned at tender documents. 3. Please clarify the purpose of the Additional Run at 100 PSIA suction pressure. We would like to understand all of the running scenario of the required compressor package, so that we can provide better solution. | 1- Bidder will design the scheme of the compressor package in such a way that continuous, efficient, safe, reliable, smooth and trouble free operation of compressor packages shall be ensured to fulfill all the process parameters & conditions as defined in the respective data sheets. 2- Bidder to note that the suction pressure of the corresponding additional case run is 100 psia. 3- Bidder has already been told in the last response, that the selection of compressors shall be done considering the conditions and cases stipulated in the datasheets of each compressor package covering complete operating envelope. As far as, an additional run at 100 psia suction pressure is concerned, please note that this additional run is not a design case and is required to assess the performance of the selected machine (selection based on conditions & Cases mentioned in Compressor Datasheets) for any future scenario. | | | | |
| 3 | 1- Volume-III (Process)6- Datasheets/0258-DS-1000-0 (DS of Nodal Compressor at Thora Deep-3 GGS) | PA/P22 MAXIMUM ALLOWABLE INTERSTAGE COOLER DISCHARGE TEMPERATURE:130 of (Note-3) PA/P22 7- Aftercooling temperature for interstage and afterstage shall be 130 of and 150 of respectively. | In our understanding interstage cooler discharge temperature is bidder's internal processes requirement, bidder only needs to ensure the afterstage temperature 150F no matter the interstage cooler discharge temperature is please confirm, and bidder should meet the design requirements of technology and standards | Bidder to adhere tender requirement stipulated in the referred compressor datasheets. | | | | | | |
| 4 | 1- Volume-III (Process)6- Datasheets/0258-DS-1000-0 (DS of Nodal Compressor at Thora Deep-3 GGS) | PA/P22 2.2 PURCHASER'S MAXIMUM ALLOWABLE COMPRESSOR PISTON SPEED: Vendor To Advise FPM PURCHASER'S MAXIMUM ALLOWABLE PRIME MOVER SPEED: 1200 RPM | The engine OEM has rich experience and can ensure the engine performance under high ambient temperature even the RPM of engine over 1200 RPM. In order to select the most reasonable and economical unit, bidder propose to select engine RPM based on the actual requirement please confirm. | Bidder to adhere tender requirement stipulated in the referred compressor datasheets. | In order to have a better & doublets understanding of the sizing requirement, we would like Company to please confirm again that, based on the tender requirement specified in the referred compressor datasheets, the prime mover speed higher than 1200 RPM is not accepted, and the bidder shall only choose the prime mover with speed not higher than 1200 RPM. | Maximum allowable prime mover speed is well defined in the Tender Document. Bidder to adhere tender requirement stipulated in the referred compressor datasheets. | | | | |
| 5 | 1- Volume-III (Process)6- Datasheets/0258-DS-1001-0 (DS of Nodal Compressor at TAY-3 GGS) | PA/P22 CASE 1/CASE 2/CASE 3 OPERATING CONDITION SUCTION TEMPERATURE 140F, RATED CONDITION SUCTION TEMPERATURE 150 F | 1. Please clarify whether the temperature 140F/150F refer to the suction of compressor (after pre-cooling) or refer to the temperature at the suction of pre-cooling. 2. If the temperature 140F/150F refer to the temperature at the suction of pre-cooling, the compressor has the ability to compress the 140/150F gas directly, the pre-cooling is not needed, bidder will double check at detail engineering stage. If pre-cooling is not needed, bidder won't provide pre-cooler please confirm. | 1- The referred temperature is at suction of pre-cooling (i.e. at upstream of compressor package inlet battery limit). 2- Bidder to note that minimum requirements are shown in the provided P&IDs and it shall further be finalized after termed detailed engineering by EPCC Contractor during detailed engineering stage. | | | | | | |
| 6 | 1- Volume-III (Process)6- Datasheets/0258-DS-1001-0 (DS of Nodal Compressor at TAY-3 GGS) | PA/P22 MINIMUM NO. OF STAGES REQUIRED ARE MENTIONED, HOWEVER, VENDOR SHALL PROVIDE THE COMPRESSOR PACKAGE CONSIDERING THE WHOLE OPERATING ENVELOPE, LOW AND HIGH COMPRESSION RATIO ACCORDINGLY WITH NO MODIFICATION REQUIRED AT FIELD. FURTHER, VENDOR SHALL PROVIDE ONE ADDITIONAL RUN AT 100 PSIA SUCTION PRESSURE | 1. Whether the unit needs to be designed according to the settle out pressure (blance pressure) i.e. the unit should back flow first by using recycle valve and then blow down when the compressor shut down. 2. Case1=800psig case2=535psig case3=185psig. When the suction pressure is high, the unit will have a large return flow according to the compressor selection. Please clarify whether the bidder can reduce the suction pressure to meet the flow rate requirement according to the actual situation. 3. It is required to check the working condition when the suction pressure is 100psia. The suction pressure 100 psia is not the input parameter of compressor selection. If the discharge pressure of the unit remains unchanged, the minimum no. stages of the unit will increase or the discharge temperature will be high which may lead to shut down of compressor. It is suggested that the bidder recommend the actual discharge pressure and capacity when the suction pressure is 100 psia based on the three case compressor selection please confirm. Please reply the above three items one by one, thank you | Refer response against serial # 2 above. | 1. Please confirm that we need to consider the system material selection and design such as the valve selection, pipeline and vessel design pressure etc. based on the settle out pressure, and need to consider the compressor sizing based on the settle out pressure. 2. Please make sure the suction pressure is 100psia not 100psig, as mentioned at tender documents. 3. Please clarify the purpose of the Additional Run at 100 PSIA suction pressure. We would like to understand all of the running scenario of the required compressor package, so that we can provide better solution. | Refer response against serial # 2 above. | | | | |
| 7 | 1- Volume-III (Process)6- Datasheets/0258-DS-1001-0 (DS of Nodal Compressor at TAY-3 GGS) | PA/P22 MAXIMUM ALLOWABLE INTERSTAGE COOLER DISCHARGE TEMPERATURE:130 of (Note-3) PA/P22 7- Aftercooling temperature for interstage and afterstage shall be 130 of and 150 of respectively. | In our understanding interstage cooler discharge temperature is bidder's internal processes requirement, bidder only needs to ensure the afterstage temperature 150F no matter the interstage cooler discharge temperature is please confirm, and bidder should meet the design requirements of technology and standards | Bidder to adhere tender requirement stipulated in the referred compressor datasheets. | | | | | | |
| 8 | 1- Volume-III (Process)6- Datasheets/0258-DS-1001-0 (DS of Nodal Compressor at TAY-3 GGS) | PA/P22 1.1.2 IN THE COMPRESSOR CYLINDER JACKET WATER SYSTEM? YES | International compressor brands such as ARIEL Use natural cooling cylinder. Natural cooling cylinder as the current international main stream form, its small volume, light weight, simple installation, no need for another water cooling system, simplified system configuration, can effectively reduce operating costs, reduce the number of wearing parts and maintenance investment. After years of practical application in the industry, the effect is obvious and efficient, which can fully ensure the smooth and efficient operation of the natural cooling cylinder under this working condition The other three projects had the same question, please confirm natural cooling cylinder is acceptable. | Bidder to adhere tender requirement stipulated in the referred compressor datasheets. | 1. As per our previous experience of Ariel compressor package driven by gas engine for OGDC, the water cooling system was used only for engine cylinder jacket water cooling with sight flow indicator and temperature indicator. 2. As an authorized compressor package of Ariel, please confirm we should follow Ariel standard configuration of compressor and cylinder. | Bidder to confirm that Compressor Cylinder jacket water cooling is now not designed/manufactured by Ariel and only Natural Cooling Cylinder is available as Standard Configuration. Bidder to submit the above confirmation on Ariel Letter Head. | Please check the attachment letter from Ariel that Ariel does not offer water jacket cooled cylinders. Standard Ariel cylinders are non-cooled (natural cooled) | Noted. Bidder's offered Ariel's Standard non-cooled cylinders are also acceptable. | | |



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| Sr. | Reference | Description | Clarification By bidder | OGDCL / ENAR Response | Clarification By bidder | OGDCL / ENAR Response | Clarification By bidder | OGDCL / ENAR Response | NOTES |
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| 9 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1002-0 (DS of Nodal Compressor at TAY GPP) | PA/P22 CASE 1/CASE 2/CASE 3 OPERATING CONDITION SUCTION TEMPERATURE 140°F, RATED CONDITION SUCTION TEMPERATURE 150°F | 1. Please clarify whether the temperature 140°F/150°F refer to the suction of compressor (after pre-cooling) or refer to the temperature at the suction of pre-cooling. 2. If the temperature 140°F/150°F refer to the temperature at the suction of pre-cooling, the compressor has the ability to compress the 140/150F gas directly to meet the customer performance requirement, the pre-cooling is not needed. Bidder will double check detail engineering stage, if pre-cooler is not needed, bidder won't provide pre-cooler please confirm. | Refer response against serial # 1 above. | | | | | |
| 10 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1002-0 (DS of Nodal Compressor at TAY GPP) | PA/P22 MINIMUM NO. OF STAGES REQUIRED ARE MENTIONED, HOWEVER, VENDOR SHALL PROVIDE THE COMPRESSOR PACKAGE CONSIDERING THE WHOLE OPERATING ENVELOPE, LOW AND HIGH COMPRESSION RATIO ACCORDINGLY WITH NO MODIFICATION REQUIRED AT FIELD. FURTHER, VENDOR SHALL PROVIDE ONE ADDITIONAL RUN AT 100 PSIA SUCTION PRESSURE | 1. Whether the unit needs to be designed according to the settle out pressure (Balance pressure) i.e. the unit should back flow first by using recycle valve and then blow down when the compressor shut down. 2. Case1=100psig case2=100psig case3=185psig. When the suction pressure is high, the unit will have a large return flow according to the compressor selection. Please clarify whether the bidder can reduce the suction pressure to meet the flow rate requirement according to the actual situation. 3. In this article, it is required to check the working condition when the suction pressure is 100psia. If the discharge pressure of the unit remains unchanged, the minimum no. stages of the unit will increase, which is in conflict with the minimum no. stages mentioned above. It is suggested that the bidder recommend the actual discharge pressure and capacity based on the three case selection please confirm. Please reply the above three items one by one, thank you The other three compressor selection had the same question, please confirm. | Refer response against serial # 2 above. | 1. Please confirm that we need to consider the system material selection and design such as the valve selection, pipeline and vessel design pressure etc. based on the settle out pressure, and need to consider the compressor sizing based on the settle out pressure. 2. Please make sure the suction pressure is 100psia (not 100psig), as mentioned at tender documents. 3. Please clarify the purpose of the Additional Run at 100 PSIA suction pressure. We would like to understand all of the running scenario of the required compressor package, so that we can provide better solution. | Refer response against serial # 2 above. | | | |
| 11 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1002-0 (DS of Nodal Compressor at TAY GPP) | PA/P22 MAXIMUM ALLOWABLE INTERSTAGE COOLER DISCHARGE TEMPERATURE: 130 OF (Note-3) PA/P22 7- Aftercooling temperature for interstage and afterstage shall be 130 of and 150 of respectively. | In our understanding interstage cooler discharge temperature is bidder's internal processes requirement, bidder only needs to ensure the afterstage temperature 150F no matter the interstage cooler discharge temperature is please confirm, and bidder should meet the design requirements of technology and standards | Refer response against serial # 7 above. | | | | | |
| 12 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1002-0 (DS of Nodal Compressor at TAY GPP) | PA/P22 2.2 PURCHASER'S MAXIMUM ALLOWABLE COMPRESSOR PISTON SPEED, Vendor To Advise FPM PURCHASER'S MAXIMUM ALLOWABLE PRIME MOVER SPEED, 1200 RPM | The engine OEM has rich experience and can ensure the engine performance under high ambient temperature even the RPM of engine over 1200 RPM. In order to select the most reasonable and economical unit, bidder propose to select engine RPM based on the actual requirement please confirm. | Refer response against serial # 4 above. | In order to have a better & doubtless understanding of the sizing requirement, we would like Company to please confirm again that, based on the tender requirement specified in the returned compressor datasheets, the prime mover speed higher than 1200 RPM is not accepted, and the bidder shall only chose the prime mover with speed not higher than 1200 RPM. | Refer response against serial # 4 above. | | | |
| 13 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1003-0 (DS of K-FEC at GPP) | PA/P22 CASE 1/CASE 2/CASE 3 OPERATING CONDITION SUCTION TEMPERATURE 150°F, RATED CONDITION SUCTION TEMPERATURE 160°F | We understand the upstream gas to the compressor suction temperature range is 140~150°F, please confirm. | Bidder to follow tender document. | | | | | |
| 14 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1003-0 (DS of K-FEC at GPP) | PA/P22 7. MINIMUM NO. OF STAGES REQUIRED ARE MENTIONED, HOWEVER, VENDOR SHALL PROVIDE THE COMPRESSOR PACKAGE CONSIDERING THE WHOLE OPERATING ENVELOPE, LOW AND HIGH COMPRESSION RATIO ACCORDINGLY WITH NO MODIFICATION REQUIRED AT FIELD. FURTHER, VENDOR SHALL ALSO PROVIDE ONE ADDITIONAL RUN AT 150 PSIG SUCTION PRESSURE | 1. Whether the unit needs to be designed according to the settle out pressure (Balance pressure) i.e. the unit should back flow first by using recycle valve and then blow down when the compressor shut down. 2. Case1=185psig case2=385psig case3=535psig case4=735psig. In bidder understanding the control valve should be used to reduce the pressure to 185 psig, 385psig, 535psig, 735 psig when suction pressure higher and near 185psig, 385 psig, 535psig, 735psig to ensure the smooth operation of compressor package please confirm. 3. It is required to check the working condition when the suction pressure is 150psig. The discharge pressure meets the requirements of 1150psig. Please confirm the capacity can be considered according to the actual selection of discharge capacity. Please reply the above three items one by one, thank you | 1. This shall be reviewed and finalized during detailed engineering stage. 2. Bidder's understanding is correct. 3. Please note that the selection of compressors shall be done considering the conditions & Cases stipulated in the datasheets of each compressor Package. As far as, an additional run at 150 psig is concerned, please note that this additional run shall be required for the selected machine (selection based on conditions & Cases mentioned in Compressor Datasheets). | 1. Please confirm that we need to consider the system material selection and design such as the valve selection, pipeline and vessel design pressure etc. based on the settle out pressure, and need to consider the compressor sizing based on the settle out pressure. 2. Please clarify the purpose of the Additional Run at 150 PSIG suction pressure. We would like to understand all of the running scenario of the required compressor package, so that we can provide better solution. | | 1- Bidder will design the scheme of the compressor package in such a way that continuous, efficient, safe, reliable, smooth and trouble free operation of compressor packages shall be ensured to fulfill all the process parameters & conditions as defined in the respective data sheets. 2- Bidder has already been told in the last response, that the selection of compressors shall be done considering the conditions and cases stipulated in the datasheets of each compressor package covering complete operating envelope. As far as, an additional run at 150 psia suction pressure is concerned, please note that this additional run is not a design case and is required to assess the performance of the selected machine (selection based on conditions & Cases mentioned in Compressor Datasheets) for any future scenario. | | |
| 15 | 1- Volume-III (Process)-6- Datasheets/0258-DS-1003-0 (DS of K-FEC at GPP) | PA/P22 MAXIMUM ALLOWABLE INTERSTAGE COOLER DISCHARGE TEMPERATURE: 130 OF (Note-3) PA/P22 7- Aftercooling temperature for interstage and afterstage shall be 130 of and 150 of respectively. | In our understanding interstage cooler discharge temperature is bidder's internal processes requirement, bidder only needs to ensure the afterstage temperature 150F no matter the interstage cooler discharge temperature is please confirm, and bidder should meet the design requirements of technology and standards | Refer response against serial # 7 above. | | | | | |



WORLD STANDARD
COMPRESSORS

ARIEL CORPORATION
35 Blackjack Rd
Mount Vernon, OH 43050

5/5/22

Subject: Compressor Cylinder Water Jacket
Customer Name: Oil & Gas Development Company Limited (OGDCL)
Project Name: KPD-TAY Compression Project
Tender Number: PROC-FC/PROJ/KPD-TAY/COMP-5313/2022

To Whom It May Concern,

This letter is to certify that Ariel does not offer water jacket cooled cylinders. Standard Ariel cylinders are non-cooled.

Best Regards,

Michael T. Varney

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