- 1. Type test certificate should not be older than five years from the bid closing date.
- 2. Packing shall have to pass tightness class B emission level with helium gas as per SHELL MESC/SPE-77/312. Production test for fugitive emission test as per SHELL standard MESC/SPE-77/312, tightness class B is to be carried out for each batch. Original production test report is to be provided along with each and every supply for continuous conformance of the product. Sample size shall be atleast 2% of the ordered quantity for each type and size. The same shall be witnessed by any NRL approved third party inspection agency i.e. BV/DNV/LLOYDS/TUV/EIL.
- 3. Inconel wire and wire mesh material shall have minimum nickel of 72% and chromium in the range of 14-17%.
- 4. Vendor is to submit test certificate for Inconel wire from a N.A.B.L accredited metallurgical testing laboratory. The test report is to be reviewed and certified from any NRL approved third party inspection agency i.e. BV/DNV/LLOYDS/TUV/EIL for conformity towards point no. 3 above.
- 5. Vendor must submit an inspection certificate with respect to construction of the packings as defined in item description from any NRL approved third party inspection agency.
- 6. For gland packing size up to 8 mm, the supplied items must be packed in 1 kg spools. For gland packing size above 8 mm, the supplied items must be packed in 2 kg spools. Supply of the items in packing sizes other than the aforementioned sizes shall lead to rejection of the items.
- 7. The supplied items must be tagged with the shelf life/expiry date of the items (if any) in each and every spool. Expiry date must not be within 2 years from the date of material receipt at NRL warehouse.
- 8. The supplied items must be tagged with NRL Item codes and properly packed for future storage.
- 9. Vendor to provide the guarantee/warrantee certificate for the items.

 Guarantee/Warrantee shall be atleast 24 months from the date of supply or 12 months from the date of installation, whichever is earlier.

Procurement of Gland Packings (PUR-MECHMNT-1003282) **RFQ number** : **6100029241**

| Item | Material Code | Description | Order Qty | UoM |
|-------|---|--|-------------|-----|
| 00010 | "Graphite Fibre brai impregnated with a oxidising atmospher Service conditions: oil, hot tar pumps, r | m, G Packing, 650°C, Graphite braided ded gland packing 8.00 mm thick, square shape, graphite mix, to withstand temperature 650 Deg C (Note upto 3000°C), Pressure 350 Bar, pH 0-14 for acids, alkalies, oils, solvents, steam, fuel refinery services, mixers and agitators. Not se against oxygen, fuming nitric acid and other strong | 5.000 on | kg |
| 00020 | Graphite Fibre braid impregnated with a oxidising atmospher Service conditions: oil, hot tar pumps, it | nm, G Packing, 650°C, Graphite braided ded gland packing 10.00 mm thick, square shape, graphite mix, to withstand temperature 650 Deg C (Note that the control of the contr | 6.000 on | kg |
| 00030 | Graphite Fibre braid impregnated with a oxidising atmospher Service conditions: oil, hot tar pumps, it | nm, G Packing, 650°C, Graphite Fibre ded gland packing 12.00 mm thick, square shape, graphite mix, to withstand temperature 650 Deg C(No re upto 3000°C), Pressure 350 Bar, pH 0-14 for acids, alkalies, oils, solvents, steam, fuel refinery services, mixers and agitators. Not se against oxygen, fuming nitric acid and other strong | 6.000 n | kg |
| 00040 | 6.00 mm thick, squareinforced with Glas 200 Deg C to + 650 | m, G Packing, 650°C, Graphite Glass are shape, Expanded Pure Graphite braided packing as fibre (non-metallic), to withstand temperature - Deg C, Pressure 30 bar, pH 0 to 14, Service ater and condensate, non-oxidising liquids and gases, t, lube oil etc | 5.000 | kg |
| 00050 | 8.00 mm thick, squareinforced with Glas 200 Deg C to + 650 | m, G Packing, 650°C, Graphite Glass are shape, Expanded Pure Graphite braided packing as fibre (non-metallic), to withstand temperature - Deg C, Pressure 30 bar, pH 0 to 14, Service ater and condensate, non-oxidising liquids and gases, by lube oil etc | 6.000 | kg |
| 00060 | 10.00 mm thick, squ reinforced with Glas 200 Deg C to + 650 Conditions - DM Wa | nm, G Packing, 650°C, Graphite Glass uare shape, Expanded Pure Graphite braided packing as fibre (non-metallic), to withstand temperature - Deg C, Pressure 30 bar, pH 0 to 14, Service ater and condensate, non-oxidising lyes and chemicals, lube | 6.000 | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|---|--|-----------|-------|
| | oil etc | | | |
| 00070 | M-ACES-0141 12m 12.00 mm thick, squ reinforced with Glas 200 Deg C to + 650 Conditions - DM Wa liquids and gases, d oil etc | 6.000 | kg | |
| 08000 | 17.50 mm thick, squ reinforced with Glas 200 Deg C to + 650 Conditions - DM Wa | omm, G Packing, 650°C, Graphite Glass uare shape, Expanded Pure Graphite braided packing is fibre (non-metallic), to withstand temperature - Deg C, Pressure 30 bar, pH 0 to 14, Service atter and condensate, non-oxidising lyes and chemicals, lube oil etc | 6.000 | kg |
| 00090 | 5.00 mm thick, squato withstand temper Service conditions - any concentration, a | n, G Packing, 290°C, 30 Bar, PTFE are shape, PTFE fibre packing with an inert lubricant, ature upto 290 Deg C, Pressure 30 Bar, pH 0 to 14, Ch lorine and chlorine dioxide, bleach, acids of alkali solutions, oils and greases, mineral oils, orrosive gases, chemicals etc | 5 | Numbe |
| 00100 | 6.00 mm thick, squato withstand temper Service conditions - any concentration, a | n, G Packing, 290°C, 30 Bar, PTFE are shape, PTFE fibre packing with an inert lubricant, ature upto 290 Deg C, Pressure 30 Bar, pH 0 to 14, Ch lorine and chlorine dioxide, bleach, acids of alkali solutions, oils and greases, mineral oils, orrosive gases, chemicals etc | 5.000 | kg |
| 00110 | 8.00 mm thick, squato withstand temper Service conditions - any concentration, a | n, G Packing, 290°C, 30 Bar, PTFE are shape, PTFE fibre packing with an inert lubricant, ature upto 290 Deg C, Pressure 30 Bar, pH 0 to 14, Ch lorine and chlorine dioxide, bleach, acids of alkali solutions, oils and greases, mineral oils, orrosive gases, chemicals etc | 6.000 | kg |
| 00120 | 10.00 mm thick, squ lubricant, to withstar 0 to 14, Service con acids of any concen | im, G Packing, 290°C, 30 Bar, PTFE uare shape, PTFE fibre packing with an inert nd temperature upto 290 Deg C, Pressure 30 Bar, pH ditions - Ch lorine and chlorine dioxide, bleach, tration, alkali solutions, oils and s, fumes and gases, corrosive gases, chemicals etc | 10.000 | kg |
| 00130 | 14.00 mm thick, squ lubricant, to withstar | nm, G Packing, 290°C, 30 Bar, PTFE pare shape, PTFE fibre packing with an inert and temperature upto 290 Deg C, Pressure 30 Bar, pH ditions - Ch lorine and chlorine dioxide, bleach, | 6.000 | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|--|--|--------------|-----|
| | - | ntration, alkali solutions, oils and s, fumes and gases, corrosive gases, chemicals etc | | |
| 00140 | 16.00 mm thick, squ lubricant, Equivalen 290 Deg C, Pressu and chlorine dioxide | nm, G Packing, 290°C, 30 Bar, PTFE uare shape, PTFE fibre packing with an inert to Spitman Style 3, to withstand temperature uptore 30 Bar, pH 0 to 14, Service conditions - Ch Iorine e, bleach, acids of any concentration, alkali preases, mineral oils, fumes and gases, emicals etc | 6.000 | kg |
| 00150 | 17.50 mm thick, squ lubricant, to withstal 0 to 14, Service cor acids of any concer | omm, G Packing, 290°C, 30 Bar, PTFE pare shape, PTFE fibre packing with an inert and temperature upto 290 Deg C, Pressure 30 Bar, paditions - Ch lorine and chlorine dioxide, bleach, altration, alkali solutions, oils and s, fumes and gases, corrosive gases, chemicals etc. | | kg |
| 00160 | 20.50 mm thick, squ lubricant, to withstal 0 to 14, Service cor acids of any concer | omm, G Packing, 290°C, 30 Bar, PTFE uare shape, PTFE fibre packing with an inert and temperature upto 290 Deg C, Pressure 30 Bar, politions - Ch lorine and chlorine dioxide, bleach, atration, alkali solutions, oils and s, fumes and gases, corrosive gases, chemicals etc. | | kg |
| 00170 | 3.00 mm thick, squa | m, G Packing, 650°C, Expanded Graphite are shape, Expanded pure graphite braided gland with Inconel Wire,temperature, 650DegC, Pressure | 5.000 450 | kg |
| 00180 | 4.00 mm thick, squa | m, G Packing, 650°C, Expanded Graphite are shape, Expanded pure graphite braided gland with Inconel Wire, temperature, 650DegC, Pressure | 5.000 | kg |
| 00190 | 3.00 mm thick, squa impregnated with a Pressure 350 Bar, p solvents, steam, fue | m, G Packing, 650°C, Graphite Fibre are shape, Graphite Fibre braided gland packing graphite mix, to withstand temperature 650 Deg C, bH 0-14 Service conditions: for acids, alkalies, oils, el oil, hot tar pumps, refinery services, mixers and nmended to use against oxygen, fuming nitric acid and agents | 5.000 and | kg |
| 00200 | 4.00 mm thick, squa impregnated with a Pressure 350 Bar, p solvents, steam, fue | m, G Packing, 650°C, Graphite Fibre are shape, Graphite Fibre braided gland packing graphite mix, to withstand temperature 650 Deg C, bH 0-14 Service conditions: for acids, alkalies, oils, el oil, hot tar pumps, refinery services, mixers and nmended to use against oxygen, fuming nitric acid a | 5.000 and | kg |

| Item | Material Code | Description C | order Qty | UoM |
|-------|---|---|-----------|-----|
| | other strong oxidisir | ng agents | | |
| 00210 | 5.00 mm thick, squa impregnated with a Pressure 350 Bar, p solvents, steam, fue | m, G Packing, 650°C, Graphite braided are shape, Graphite Fibre braided gland packing graphite mix, to withstand temperature 650 Deg C, bH 0-14 Service conditions: for acids, alkalies, oils, el oil, hot tar pumps, refinery services, mixers and namended to use against oxygen, fuming nitric acid and ag agents | 5.000 | kg |
| 00220 | 19.00 mm thick, squ impregnated with a Pressure 350 Bar, p solvents, steam, fue | nm, G Packing, 650°C, Graphite Fibre pare shape, Graphite Fibre braided gland packing graphite mix, to withstand temperature 650 Deg C, ph 0-14 Service conditions: for acids, alkalies, oils, el oil, hot tar pumps, refinery services, mixers and mended to use against oxygen, fuming nitric acid and ag agents | 6.000 | kg |
| 00230 | 16.00 mm thick, squand paraffin oil, to w | nm, G Packing, 150°C, 30 Bar, Ramie fi Dare shape, Ramie fibre packing impregnated with PTFE withstand temperature upto 150 Deg C, Pressure 30 vice conditions - Wa ter, chilled water, cooling c | 6.000 | kg |
| 00240 | 8.00 mm thick, squa and paraffin oil, to w | m, G Packing, 150°C, 30 Bar, Ramie fi are shape, Ramie fibre packing impregnated with PTFE vithstand temperature upto 150 Deg C, Pressure 30 vice conditions - Wa ter, chilled water, cooling c | 5.000 | kg |
| 00250 | 2.00 mm thick, squal Inconel wire mesh ja reinforcement of Incomit withstand temperature Hydrocarbons, Hydrocarbons, Hydrocatalysts, Dyes & Cliquids & gases etc. | m, G Packing, 650°C, 500 Bar. Graphite are shape, Expanded Graphite braided Packing having a acket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for rogen, Superheated & Saturated Steam, Hot Ash, Solid chemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% | 10.000 | kg |
| 00260 | 4.00 mm thick, squa Inconel wire mesh ja reinforcement of Inco withstand temperatu Hydrocarbons, Hydr Catalysts, Dyes & C liquids & gases etc. | m, G Packing, 650°C, Inconel Graphite are shape, Expanded Graphite braided Packing having a acket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for rogen, Superheated & Saturated Steam, Hot Ash, Solid chemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% | 20.000 | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|--|--|-----------|-----|
| 00270 | 6.00 mm thick, squal Inconel wire mesh ja reinforcement of Incomithstand temperature Hydrocarbons, Hydrocatalysts, Dyes & Cliquids & gases etc. | n, G Packing, 650°C, Inconel Graphite are shape, Expanded Graphite braided Packing hacket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for rogen, Superheated & Saturated Steam, Hot Ash chemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% |) | kg |
| 00280 | 8.00 mm thick, squal Inconel wire mesh ja reinforcement of Incomithstand temperature Hydrocarbons, Hydrocatalysts, Dyes & Cliquids & gases etc. | n, G Packing, 650°C, Inconel Graphite are shape, Expanded Graphite braided Packing hacket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for rogen, Superheated & Saturated Steam, Hot Ashemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% | | kg |
| 00290 | an Inconel wire mes reinforcement of Inc withstand temperatu Hydrocarbons, Hydr Catalysts, Dyes & C liquids & gases etc. | arm, G Packing, 650°C, Inconel Graphite ware shape, Expanded Graphite braided Packing sh jacket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ware 650 Deg. C, pressure 500 Bar, Ideal for cogen, Superheated & Saturated Steam, Hot Ash shemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% | | kg |
| 00300 | 12.00 mm thick, squ Inconel wire mesh ja reinforcement of Inco withstand temperatu Hydrocarbons, Hydr Catalysts, Dyes & C liquids & gases etc. | arm, G Packing, 650°C, Inconel Graphite ware shape, Expanded Graphite braided Packing hacket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for cogen, Superheated & Saturated Steam, Hot Ashemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: m, chromium: 14-17% |) | kg |
| 00310 | 14.00 mm thick, squ Inconel wire mesh ja reinforcement of Inco withstand temperatu Hydrocarbons, Hydr | nm, G Packing, 650°C, Inconel Graphite uare shape, Expanded Graphite braided Packing hacket over each yarn along with a multiple conel wires (minimum 3 wires) inside each yarn to ure 650 Deg. C, pressure 500 Bar, Ideal for rogen, Superheated & Saturated Steam, Hot Ash, themicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. |) | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|--|---|---------------|-----|
| | Inconel wire & wire m | esh composition: nickel: 72% minimum, chromium: | 14- | |
| 00320 | 16.00 mm thick, squa an Inconel wire mesh reinforcement of Inco withstand temperatur Hydrocarbons, Hydro Catalysts, Dyes & Ch | n, G Packing, 650°C, Inconel Graphite are shape, Expanded Graphite braided Packing having jacket over each yarn along with a multiple anel wires (minimum 3 wires) inside each yarn to be 650 Deg. C, pressure 500 Bar, Ideal for gen, Superheated & Saturated Steam, Hot Ash, Soluemicals, Fuel Oil, Lube Oil, all non-oxidizing Valves. Inconel wire & wire mesh composition: | | kg |
| 00330 | 8.00 mm thick, squar in the outside corners and finish, to withstar pH 0 to 14, Service c and bottom slurry (re | , G Packing, 650°C, Graphite reinforc e shape, Expanded Pure Graphite packing reinforce s with carbon fibres, with a special graphite mix nd temperature upto 650 Deg C, Pressure 200 Bar, onditions - Ca ustics, water, steam, FCC catalyst finery), DM water, all hydrocarbons, non-abrasive ypo, boiler feed water, fuel-lube generation pumps | 20.000 ed | kg |
| 00340 | 12.00 mm thick, squain the outside corners and finish, to withstar pH 0 to 14, Service c and bottom slurry (re | n, G Packing, 650°C, Graphite reinfor are shape, Expanded Pure Graphite packing reinforces with carbon fibres, with a special graphite mix and temperature upto 650 Deg C, Pressure 200 Bar, conditions - Ca ustics, water, steam, FCC catalyst finery), DM water, all hydrocarbons, non-abrasive typo, boiler feed water, fuel-lube generation pumps | 16.000 eed | kg |
| 00350 | 14.00 mm thick, squain the outside corners and finish, to withstar pH 0 to 14, Service c and bottom slurry (re | n, G Packing, 650°C, Graphite reinfor are shape, Expanded Pure Graphite packing reinforces with carbon fibres, with a special graphite mix and temperature upto 650 Deg C, Pressure 200 Bar, conditions - Ca ustics, water, steam, FCC catalyst finery), DM water, all hydrocarbons, non-abrasive typo, boiler feed water, fuel-lube generation pumps | 10.000 eed | kg |
| 00360 | 4.00 mm thick, squar reinforced with arami withstand temperatur Service conditions - 0 washers, sewage, so | , G Packing, 280°C, Graphite PTFE e shape, Special PTFE graphite packing intimately d fibres in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, Ch emical and abrasive slurries, liquor pumps, lvents, aggressive fluids, water, boiler feed water, e, oils and greases, steam, paper mill applications | 10.000 | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|---|---|-----------|-----|
| 00370 | 8.00 mm thick, square reinforced with aramic withstand temperature Service conditions - C washers, sewage, solv | G Packing, 280°C, Graphite PTFE shape, Special PTFE graphite packing intimately liferes in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, h emical and abrasive slurries, liquor pumps, vents, aggressive fluids, water, boiler feed water, e, oils and greases, steam, paper mill applications | 15.000 | kg |
| 00380 | 10.00 mm thick, squareinforced with aramic withstand temperature Service conditions - C washers, sewage, solv | re shape, Special PTFE graphite PTFE re shape, Special PTFE graphite packing intimately I fibres in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, h emical and abrasive slurries, liquor pumps, vents, aggressive fluids, er, hot water, condensate, oils and greases, lications etc | 10.000 | kg |
| 00390 | 12.00 mm thick, squareinforced with aramic withstand temperature Service conditions - C washers, sewage, solv | re shape, Special PTFE graphite packing intimately I fibres in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, h emical and abrasive slurries, liquor pumps, vents, aggressive fluids, water, boiler feed water, e, oils and greases, steam, paper mill applications | 10.000 | kg |
| 00400 | 14.00 mm thick, squareinforced with aramic withstand temperature Service conditions - C washers, sewage, solv | re shape, Special PTFE graphite packing intimately I fibres in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, h emical and abrasive slurries, liquor pumps, vents, aggressive fluids, water, boiler feed water, e, oils and greases, steam, paper mill applications | 10.000 | kg |
| 00410 | 16.00 mm thick, squareinforced with aramic withstand temperature Service conditions - C washers, sewage, solv | re shape, Special PTFE graphite packing intimately I fibres in each yarn, in interlock braid, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, h emical and abrasive slurries, liquor pumps, vents, aggressive fluids, water, boiler feed water, e, oils and greases, steam, paper mill applications | 14.000 | kg |
| 00420 | 8.00 mm thick, square reinforced with Aramic | , G Packing, 280°C, Graphite SR e shape, Spl PTFE Graphite Fibre Packing intimately d Fibres having resilient silicon rubber core, to e upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, | 5.000 | kg |

| Item | Material Code | Description | Order Qty | UoM |
|-------|--|--|-----------|-----|
| | solvents, aggressive | Ch emical and abrasive slurries, sea water, sewage, e fluids, water, liquor pumps, boiler feed water, hot oils and greases, steam, paper and sugar mill | | |
| 00430 | 14.00 mm thick, squereinforced with Aran withstand temperate Service conditions solvents, aggressive | m, G Packing, 280°C, Graphite SR uare shape, Spl PTFE Graphite Fibre Packing intimately mid Fibres having resilient silicon rubber core, to ure upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, Ch emical and abrasive slurries, sea water, sewage, e fluids, water, liquor pumps, boiler feed water, hot oils and greases, steam, paper and sugar mill | 6.000 | kg |
| 00440 | 12.50 mm thick, squareinforced with Glass 200 Deg C to + 650 Conditions - DM Wa | 5mm, G Packing, 650°C, Graphite Glass uare shape, Expanded Pure Graphite braided packing as fibre (non-metallic), to withstand temperature - Deg C, Pressure 30 bar, pH 0 to 14, Service ater and condensate, non-oxidising dyes and chemicals, lube oil etc | 6.000 | kg |
| 00450 | 6.00 mm thick, squareinforced with aran withstand temperate Service conditions washers, sewage, s | m, G Packing, 280°C, Graphite PTFE are shape, Special PTFE graphite packing intimately mid fibres in each yarn, in interlock braid, to ure upto 280 Deg C, Pressure 80 Bar, pH 0 to 14, Chemical and abrasive slurries, liquor pumps, solvents, aggressive fluids, water, boiler feed water, ate, oils and greases, steam, paper mill applications | 30.000 | kg |
| 00460 | 12.50 mm thick, squ Expanded PTFE Gr to withstand temper Velocity 20 m/sec, p solution plunger pur and white liquor, se | 5mm, G Packing, 300°C, Aramid fibre uare shape, Aramid fibre packing (on the edges) with raphite fibre faces with special graphite and MoS2 mix, rature200 Deg C to + 300 Deg C, Pressure 300 Bar, pH 0-14, Service conditions - Am monia and carbonate mps, liquor pumps in paper mills like black wage water, hot water, s, greases, solids, sand, ali solutions etc | 15.000 | kg |