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### **1.Product Overview:-**

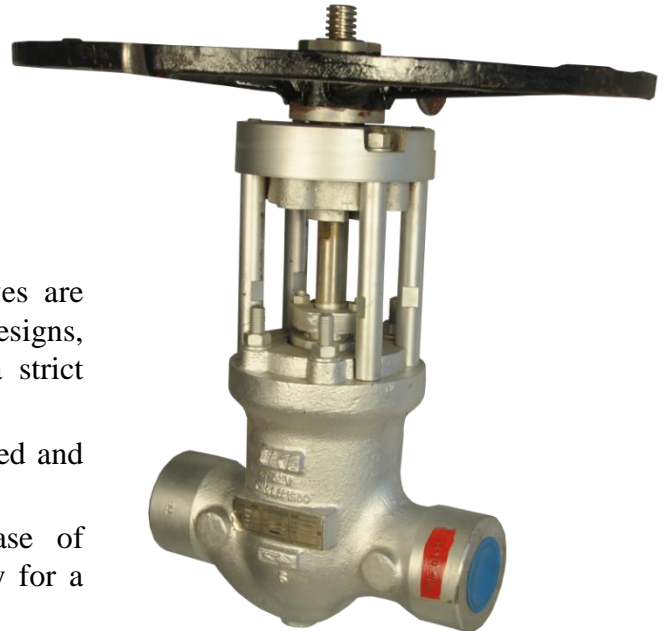
UKL High Pressure Gate and Globe Valves are manufactured to the latest International designs, using latest state of art technology and a strict quality control system.

These valves are exceptionally sturdy, rugged and durable.

They are designed for a tight seal, ease of operation with inbuilt Quality and integrity for a long service life.

### **Industrial Application**

- Power Stations, General Industries, Chemical and Process Industries, Sugar, Refineries, Fertilizers, steel, Off-shore Platforms.
- For Water, Steam ( saturated/ Superheated) Oil and Gas, Hydrocarbons, NACE and sour services, LNG and Natural Gas, Oxygen , Hydrogen and many other Process applications.
- All valves up to 40 mm are outside screw and yoke, Welded Bonnet type, rising stem, renewable seat for Gate valves. Globe valves will have integral seat.
- All valves 50 mm and above are also outside screw and yoke, rising stem and with pressure seal bonnet.
- Gate valves shall be with Flexible wedge type Gate. Globe Valves shall have conical type disc.
- Pressure seal Bonnet Design
- Stellite Hard faced seat and disc.
- Direct Retro-fitted Actuator/ Gear Box arrangement as applicable.



## **2. Installation and Commissioning Instructions:**

### **UNI Klinger High Pressure VALVES**

1. UKL High Pressure valves can be mounted either horizontally or vertically.
2. UKL High Pressure valves must be closed clockwise & opened anticlockwise.
3. All UKL , High Pressure valves indicate flow directions by an arrow embossed or punched on the valve bodies, The head of arrow shows the path of flow (i.e.: inlet to out let) , the valves have to be installed accordingly. Attention should be paid to the correctness of direction.
4. Always lift the UKL High Pressure valve by clamping necessary attachments to the valve body. Do not lift UKL High Pressure valves by hand wheel, as this may cause breakage/deformation of the hand wheel.
5. Remove protective caps from the both side of the valves before installation, provide adequate pipe supports to make valves free from external stresses. For flange end valves bolt material of construction and size will be as per applicable standards.
6. During flushing the UKL High Pressure valves, temporary strainers are recommended if the media have suspended impurities. Also use heating jackets to crystallizing media. Use drain plugs (provided against request) to drain the valve, in case required. Ensure velocity of the media is within the piping recommendations.
7. Completely assembled UKL High Pressure valves are set to close position with end caps.
8. During operating, the mobility of open/close should be gradual sudden jerks are not recommended.
9. UKL High Pressure valves are metal seat valves, hence on final closure –leak tightness. Manual excess torque, with a help of a Tommy- lever equivalent to the Diameter of hand wheel may be used.
10. Regular greasing on the spindle threads and the sleeve, ensure smooth functional operation valve.
11. UKL High Pressure valves are provided with seal of gland packing. Due to the operational cycles and the gland packing may loosen, Check for packing tightness, and extra packing if required.
12. Higher size (50NB and above) UKL High pressure valves have pressure seal ring.
13. If the line & valve are subsequently insulated, the insulation should only extend as fact as the head flange on the body side so that access to the bonnet hexagon nuts is not impended. Since the valve body can remain in site for repairs and maintenance work, the valve insulation does not need to be removable.
14. UKL High Pressure valve with actuators for operation are available on request.
14. UKL accepts no liability relating to guarantees, warrantees and product liability legislation for damage cause by failure to observe the operating instructions.

## Hazardous Operating Errors and Possible Sources of Danger

1. Do not loosen or undo Hex nuts while valves are under pressure, in case of bolted cast bonnet construction.
2. Valve must not be subjected to pressure shocks in excess of one and half times the rated pressure.
3. Avoid significant vibration of valve.
3. Do not apply impact pressure like water hammer etc.
4. Do not open / close very fast respect with actuators.
5. Use heating jacket for freezing media & cooling jackets for cooling media
6. Ensure clean fluids
7. Whatever the application, always consult the operating limits diagram (Pressure - Temperature refer Catalogue) and also consider the suitability of the materials for various process fluids.
8. In case of Valve is in isolation, and accidental sudden opening on its own is undesirable, chain the Hand Wheel along with Stem to Bonnet Yoke tightly.

### **3. MAINTENANCE AND TROUBLESHOOTING:-**

Your UKL make High Pressure Valve will provide you with long, trouble-free service if they are correctly installed and maintained.

A few minutes of your time spend reading these instructions now may save hours of trouble and downtime later.

Following procedure is recommended:

1. Depressurize and empty the system.
2. Open the valve fully.
3. For 15 NB to 40 NB UHPV, Grind tack weld to disassemble body and bonnet and For 50 NB and above size valves, Unscrew bonnet fastening nuts.
4. Lift the bonnet assembly together with the hand wheel and handle properly to avoid damages.
5. Open the valve fully.
6. Unscrew the plug from the spindle.
7. Clean the sealing surface, check for defects, dents wear and tear visually.
8. Check the seating surface in the valve body, for defect / damages.
9. If the defects are found, we recommend lapping the sealing surface by cast iron plate.
10. Measure the approximate diameter of the seat by calipers.
11. Prepare lapping rings for lapping of Plug & Seat as per above dimension.

## LAPPING TO BE CARRIED IN FOLLOWING MANNER.

1. Hold plug & seat properly to start lapping.
2. Using a medium lapping paste rotate the plate over sealing surface slowly.
3. Do not apply any pressure during lapping or heavy lapping plates,(max 10mm thick)
4. Clean the surface after every few turns, apply new paste and re lap.
5. Carry out visual inspection before changing the paste
6. Lapping with medium paste has to be continued until the machine tool mark or the defect diminishes.
7. After the defect/machine tool mark diminishes follow the above lapping process using the fine paste
8. Once the fineness is achieved, check the mating area of sealing surface by applying strainer, i.e., colour to the seat.
9. Keep plug loosely on seat to check colour match.
10. If nearly 85% of print is observed on the plug, the valve is ready for assembly.
11. In case if the stain print is below 85% follow the lapping procedure till the result is achieved.

## LUBRICATION OF MOVING PARTS:

### (A) Routine maintenance:

1. Force lubricant through grease nipple near the yoke.
2. Apply the grease on threaded part of the stem to keep the threaded part well greased.

Note:-Routine maintenance for Lubrication of threaded parts must be carried out every month.

However this may vary depending on operating and environmental conditions.

### (B) Off-line maintenance:

1. Unscrew the hand wheel nut and Remove the hand wheel.
2. Check the wear & tear hand wheel key, replace if necessary.

For sizes above 50 NB

1. Unscrew the yoke nut and the yoke sleeve.
2. Wipe / clean the grease on the spindle threads.
3. Apply the fresh lubricant of recommended grade, Meta flux 70-81Gr or equivalent
4. Screw the yoke sleeve and Check the movement of sleeve on the spindle.
5. Screw the yoke nut.
6. Insert the hand wheel with key in the keyway and Screw the hand wheel nut.
7. Check the motion of the spindle by opening/closing valve.
8. Check surface of the spindle for smoothness. It should not be corroded / eroded.

## REPLACEMENT OF GLAND PACKING.

- 1) Open the valve fully and ensure that backseat rests on the backseat bush.
- 2) Loosen the eye bolt nut
- 3) Lift the gland flange
- 4) Lift the gland bush, visually observe for erosion and corrosion of gland bush / gland flange and stem surface.
- 5) Remove the old packing
- 6) Insert the recommended Gland Packing
- 7) Lower the gland bush and Gland Flange.
- 8) Tighten the eyebolt nuts uniformly.
- 9) During the tightening of eye bolt check the operation of the valve.(the valve spindle should sufficiently free enough for manual operation)
- 10) Visually observe alignment of gland flange.
- 11) Operate the valve a few times before commissioning.

FOR 50 NB and above size High Pressure valves

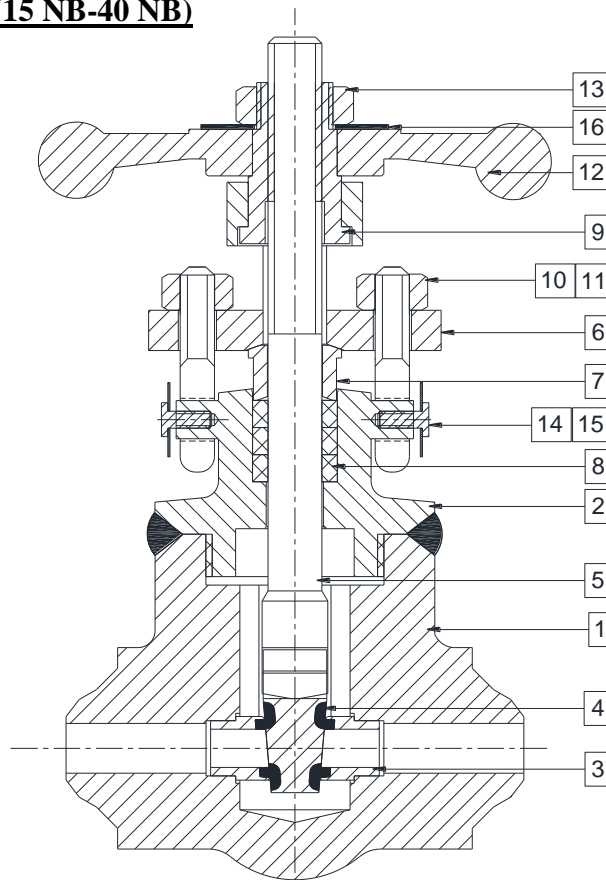
50 NB and above UKL High Pressure Valves consist of Pressure seal ring made of Expanded Graphite. This pressure seal ring is placed between support ring and bonnet of valve. This pressure ring must be checked during maintenance for erosion/ corrosion.

## REPLACEMENT OF PRESSURE SEAL RING:-

1. Open the valve fully.
2. Loosen the bonnet fastening nuts.
3. Remove the bonnet assembly with care.
4. Remove the segment ring and support ring.
5. Replace the Pressure seal ring with new one.
6. Place the support ring and segment ring.
7. Mount the bonnet in the body.
8. Tighten the bonnet fastening nuts.
9. Operate the valve a few times before commissioning.

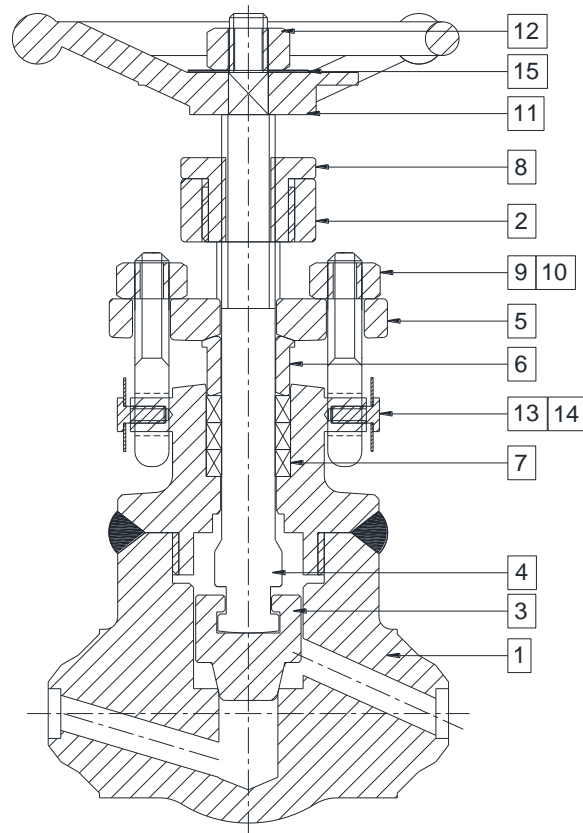
## 5.BILL OF MATERIAL

### UKL HPV – GATE (15 NB-40 NB)



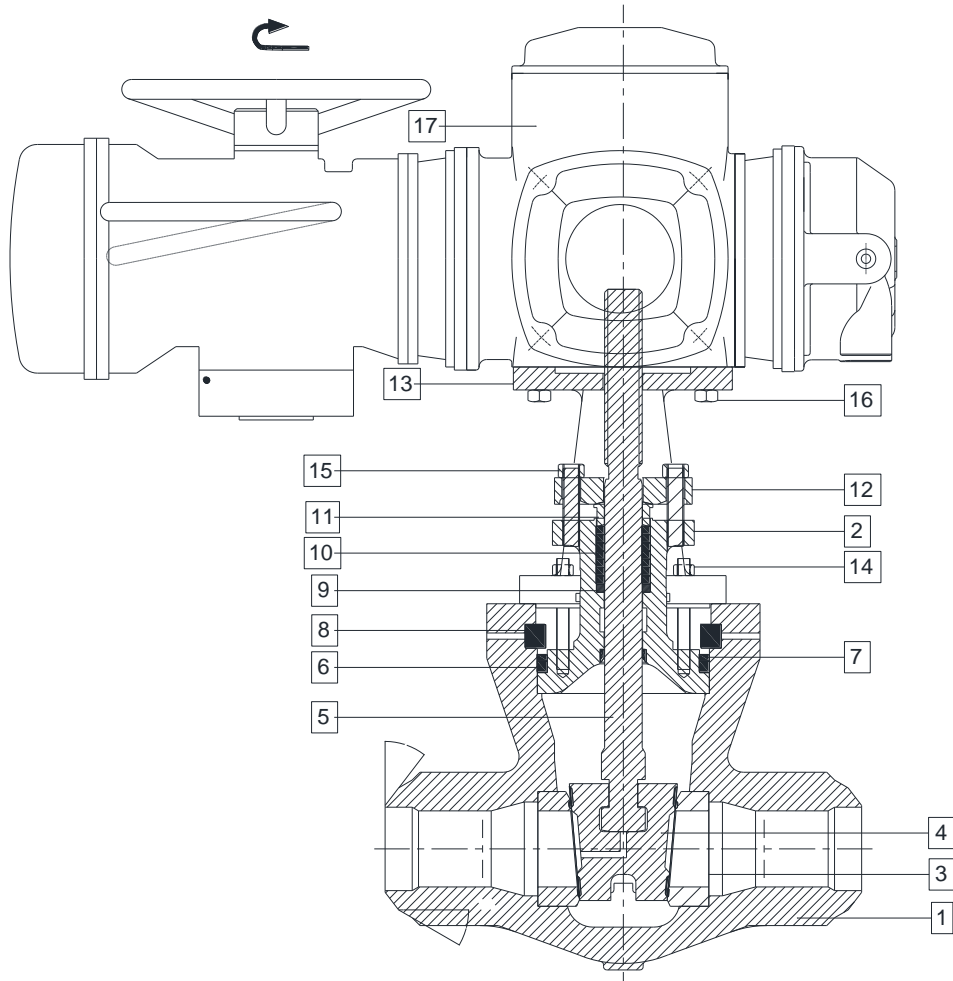
| No. | PART NAME         | MATERIAL              | MATERIAL CODE                |
|-----|-------------------|-----------------------|------------------------------|
| 1   | Body              | Forged Steel          | ASTM A105 /A182F11/F22       |
| 2   | Bonnet            | Forged Steel          | ASTM A105 /A182F11/F22       |
| 3   | Seat              | Stainless Steel + St. | ASTM A276 -TP410             |
| 4   | Wedge             | Stainless Steel       | ASTM A276 -TP410             |
| 5   | Stem              | Stainless Steel       | ASTM A276-TP410              |
| 6   | Gland Flange      | Forged Steel          | ASTM A105 /A182F11/F22       |
| 7   | Gland Bush        | Klinger Std.          | ASTM A276-TP410              |
| 8   | Gland Packing     | Graphite              | Embedded-Die Formed Graphite |
| 9   | Yoke Sleeve       | SG Iron 400/12        | SG Iron 400/12               |
| 10  | Eye Bolt / Stud   | Alloy Steel           | ASTM A 193 Gr.B7             |
| 11  | Nut               | Carbon Steel          | ASTM A 194 Gr.2H             |
| 12  | Hand Wheel        | M.I./C.S.             | M.I./C.S.                    |
| 13  | Hand Wheel Nut    | Carbon Steel          | ASTM A 194 Gr.2H             |
| 14  | Cheese Head Screw | Carbon Steel          | Carbon Steel                 |
| 15  | Washer            | Carbon Steel          | Carbon Steel                 |
| 16  | Name Plate        | Stainless Steel       | Stainless Steel              |

## HIGH PRESSURE GLOBE VALVE (15 NB to 40 NB):-



| No. | PART NAME         | MATERIAL        | MATERIAL CODE                 |
|-----|-------------------|-----------------|-------------------------------|
| 1   | Body              | Forged Steel    | ASTM A105 /A182F11/F22        |
| 2   | Bonnet            | Forged Steel    | ASTM A105 /A182F11/F22        |
| 3   | Plug              | S.S. + St.      | ASTM A276-TP 410              |
| 4   | Stem              | Stainless Steel | ASTM A276 / A479-TP 410       |
| 5   | Gland Flange      | Forged Steel    | ASTM A105/A182F11/F22         |
| 6   | Gland Bush        | Klinger Std.    | ASTM A276-TP410               |
| 7   | Gland Packing     | Graphite        | Embedded -Die Formed Graphite |
| 8   | Yoke Nut          | SG Iron 400/12  | SG Iron 400/12                |
| 9   | Eye Bolt / Stud   | Alloy Steel     | ASTM A 193 Gr.B7              |
| 10  | Nut               | Carbon Steel    | ASTM A 194 Gr.2H              |
| 11  | Hand Wheel        | M.I./C.S.       | M.I./C.S.                     |
| 12  | Hand Wheel Nut    | Carbon Steel    | ASTM A 194 Gr.2H              |
| 13  | Cheese Head Screw | Carbon Steel    | Carbon Steel                  |
| 14  | Washer            | Carbon Steel    | Carbon Steel                  |
| 15  | Name Plate        | Stainless Steel | Stainless Steel               |

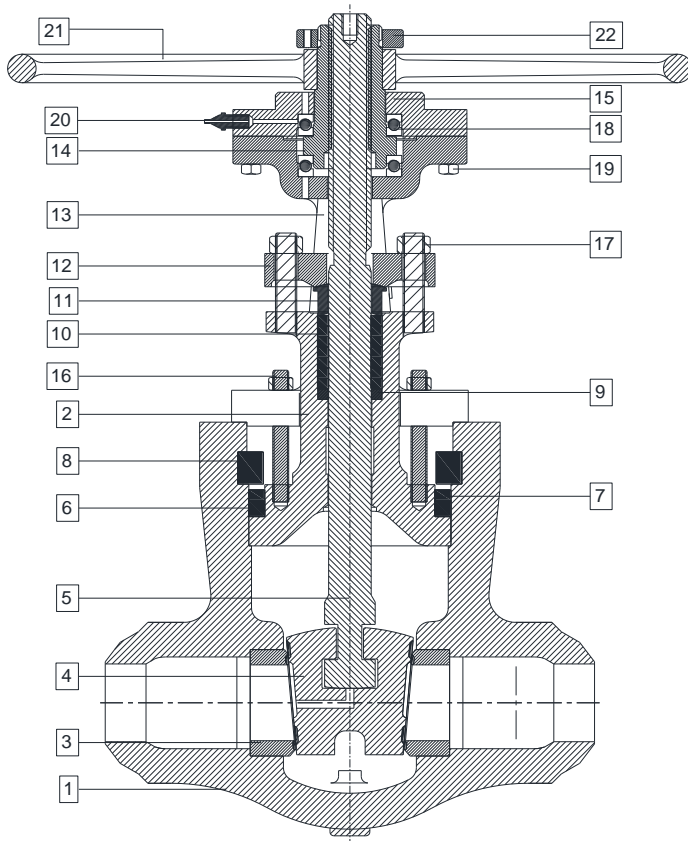
## UKL High Pressure Valve with Electrical Actuator:-



| Sr. | Item Description                 | MOC                               |
|-----|----------------------------------|-----------------------------------|
| 01  | Body                             | ASTM A217 Gr. WC9                 |
| 02  | Bonnet                           | ASTM A217 Gr. WC9                 |
| 03  | Seat                             | ASTM A217 Gr. WC9                 |
| 04  | Wedge                            | ASTM A217 Gr. WC9                 |
| 05  | Stem                             | ASTM A276/479 TP.410              |
| 06  | Pressure Seal Ring               | Graphite                          |
| 07  | Support Ring                     | ASTM A743 Gr. CA15                |
| 08  | Segment Ring                     | ASTM A743 Gr. CA15                |
| 09  | Anti Extrusion Ring              | ASTM A276 TP.410                  |
| 10  | Gland Packing                    | Graphite - With Enconel Inhibitor |
| 11  | Gland Bush                       | ASTM A276 TP.410                  |
| 12  | Gland Flange                     | ASTM A216 Gr. WCB                 |
| 13  | Yoke                             | ASTM A216 Gr. WCB                 |
| 14  | Yoke To Bonnet - Stud/Nut        | ASTM A193 Gr. B16 / A194 Gr. 7    |
| 15  | Gland Flange To Yoke - Stud/Nut  | ASTM A193 Gr. B16 / A194 Gr. 7    |
| 16  | Allen Bolt Actuator To Top Plate | Allen Bolt Actuator To Top Plate  |
| 17  | Electrical Actuator              | Standard - See Actuator Details   |



## UKL High Pressure Seal Gate Valve (size 50 NB to 250 NB)

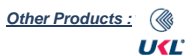


| Sr. | Item Description                  | MOC                               |
|-----|-----------------------------------|-----------------------------------|
| 01  | Body                              | ASTM A217 Gr. WC6                 |
| 02  | Bonnet                            | ASTM A217 Gr. WC6                 |
| 03  | Seat                              | ASTM A217 Gr. WC6                 |
| 04  | Wedge                             | ASTM A217 Gr. WC6                 |
| 05  | Stem                              | ASTM A276 TP.410                  |
| 06  | Pressure Seal Ring                | Die Formed Graphite               |
| 07  | Support Ring                      | ASTM A743 Gr. CA15                |
| 08  | Segment Ring                      | ASTM A743 Gr. CA15                |
| 09  | Anti Extrusion Ring               | ASTM A276 TP.410                  |
| 10  | Gland Packing                     | Graphite - With Enconel Inhibitor |
| 11  | Gland Bush                        | ASTM A276 TP.410                  |
| 12  | Gland Flange                      | ASTM A216 Gr. WCB                 |
| 13  | Yoke                              | ASTM A216 Gr. WCB                 |
| 14  | Yoke Sleeve                       | SG Iron 400/12                    |
| 15  | Yoke Sleeve Retainer              | ASTM A216 Gr. WCB                 |
| 16  | Yoke To Bonnet - Stud/Nut         | ASTM A193 Gr. B16 / A194 Gr. 7    |
| 17  | Gland Flange To Bonnet - Stud/Nut | ASTM A193 Gr. B16 / A194 Gr. 7    |
| 18  | Thrust Bearing                    | Stainless Steel                   |
| 19  | Hex Bolts for YSR To Yoke         | Gr. 8.8 or Higher                 |
| 20  | Grease Nipple                     | Steel                             |
| 21  | Hand Wheel                        | ASTM A216 Gr. WCB                 |
| 22  | Hand Wheel Nut                    | Carbon Steel                      |

## 5. STORAGE:-

### STORAGE INSTRUCTION FOR BELLOW SEAL VALVES

- Completely assembled valves are to be stored in the “as-received“(valves set to CLOSED position, connections plugged). Spare parts for valves are to be handled with care, and should be kept in the original packing furnished by the factory if possible during all storage.
- If cover or shrink films are used, the appropriate measure must be taken to ensure that the atmosphere inside the covers stay free of condensate water.
- To avoid confusion, all parts stored must be labeled as on the delivery note and stored in the correct place.
- Instruction manuals should always be stored with products to ensure that important information and documents are appropriately passed on.
- Corresponding documents must be available for the identification of UKL components.
- Damages owing to improper storage will release UKL from any obligations as may be derived from the warranty, guarantee and product liability.



**Other Products :** Cast / Forged Steel Piston Valves, Bellow Seal Valves, High Pressure valves (Gate/Globe) , Strainers – “Y” Type, Flash Vessel, Steam Traps (Thermodynamic, Thermostatic, Ball Float Traps, Inverted Bucket), Pressure Reducing Station, Condensate Recovery Products, Level Gauges (Reflex, Transparent, Bicolor), Sight Glass, Hot Water Generation System, Safety and Relief Valves.  
**FSD Products :** Compressed Asbestos / Non Asbestos Fiber Sheeting / Cut Gaskets, Spiral Wound Gaskets.

*In view of technical progress design and dimensions are subjected to change without notice.*



**UNI KLINGER LIMITED**

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