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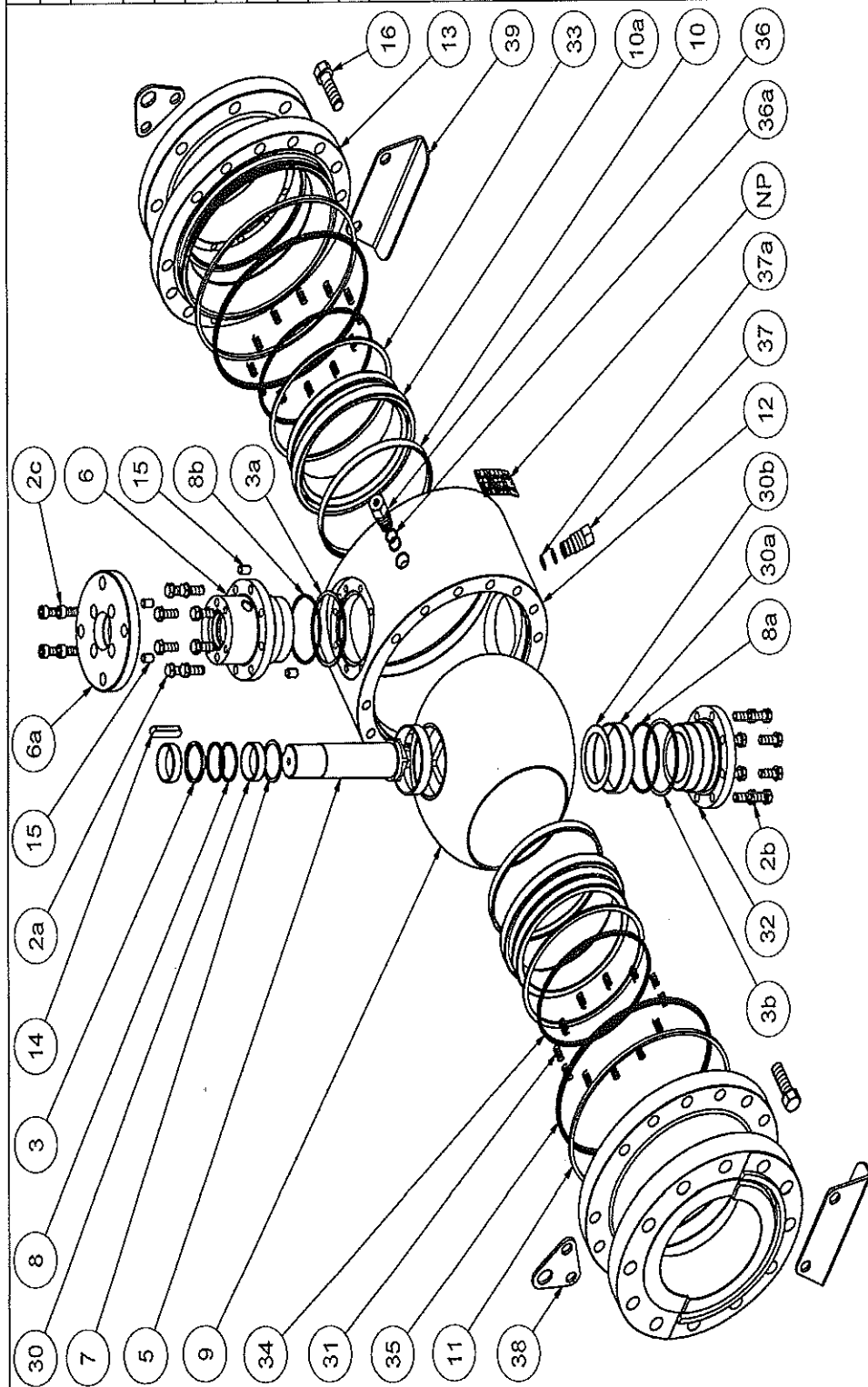
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MANUAL INSTRUCTION No.124-0/10 FOR  
 STORAGE, INSTALLATION, OPERATION AND  
 MAINTENANCE FOR STARLINE BALL VALVES  
 TYPE ULTRASTAR No.0.

**N.0 ULTRASTAR – SOFT SEATED  
 SIZE RANGE 4" CLASS 2500  
 SIZE RANGE 6" CLASS 150 - 1500  
 SIZE RANGE 8" – 10" CLASS 150 - 900**

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ITEM NO.	Q TY.	PART NAME	MATERIAL
NP	1	Name Plate	
2 a - 2 b		Top Cover Trunnion Screw	
2 c		Upper Flange Screw	
3	1	Stem Fire Seal	** G
3 a	1	Top Cover Fire Seal	** G
3 b	1	Trunnion Fire Seal	** G
5	1	Upper Stem	
6	1	Top cover	
6 a	1	Upper Flange	
7	1	Thrust washer	** S
8-8 a - 8 b		Stem Trunnion Top Cover "o" Ring	**
9	1	Ball	**
10	2	Insert Seat	**
10 a	2	Seat Ring	**
11	2	Adaptor Fire Seal	** G
12	1	Body	
13	2	Upper Flange	
14	1	Stem Key	
15	4	Top Cover / Upper Flange pin	
16		Adaptor Bolts	
30 - 30a	2 + 2	Stem / Ball Bearing	
30 b	1	Bearing Trunnion	
31		Seat Spring	
32	1	Trunnion	
33	2	Seat Fire Seal	** G
34	2	Seat "o" Ring	**
35	2	Flange "o" Ring	**
36	1	Vent valve / bleeder	
36 a	2	Vent "o" Ring	**
37	1	Drain Plug	
37 a	2	Drain "o" Ring	**
38	2	Lifting Lug	
39	2	Foot	

**\*\* Recommended material  
 for start-up/commissioning  
 and two years service**

**VALVE SIZE: 4" □ 6" □ 8" □ 10" □ 1 2" □  
 CLASS 150 □ 300 □ 600 □ 800 □ 900 □ 1500 □ 2500 □**

**FULL BORE □  
 REDUCED BORE □**

**NOMENCLATURE FOR SOFT MATERIAL: V: Viton VA: Viton AED V: Viton Glt E: Elast-o-lion I: Incofep N: Nylon P: Peek  
 S: Reinf. Ptf. C: Chemraz - Special different materials will be reported with complete designation**

## **1.0 SCOPE**

This manual is intended as a guide to assist customers or end-users for storage, installation, and maintenance of Starline ball valves in the standard arrangements. For this reason subsequent additions and special instruction to the present manual will be provided in case of special ball valve, critical services or customer requirements.

## **2.0 APPLICABILITY**

This manual is applicable to Starline ball valves.

## **3.0 STORAGE**

### **3.1 INFORMATION ON SURFACE PROTECTION (EXTERNAL/INTERNAL) AND PACKING DETAILS.**

- a- before shipment from Starline factory all c.s. valves (A105-LF2) are protected against corrosion by phosphated treatment
- b- all S.S. valves (304-316-F51-F44-F321 etc.) are pickled and passivated
- c- a pure vaseline oil is used as lubricant on all internal surfaces, this may be removed with a solvent if found objectionable. All valves are adequately packed into a strong cardboard case in such a way to avoid any possible damage during transport and storage period before use.

### **3.2 CAUTION AND MAINTENANCE PERIOD**

#### **3.3 IF BALL VALVES ARE NOT DESTINATED FOR IMMEDIATE USE FOLLOWING CAUTIONS MUST BE TAKEN:**

- a- if possible it would be advisable to leave the ball valves in their own packing cases during the entire period of storage.
- b- ball valve must remain in open position during all this time
- c- in order to prevent any damage, the protective plastic cover on the ends of the valves shall not be removed.

### **3.4 ATMOSPHERIC PROTECTION**

- a- it is advisable to store the valve in waterproof conditions in a building with an adequate roof. Ball valves shall be protected to safeguard against all the environments: humidity, moisture, rain, dust, dirt, sand, mud, salt air, salt spray and seawater.

- b- all valves complete with actuators are to be stored in closed and dry conditions.

### **3.5 LONG STORAGE PERIOD**

Valves to be stored for a long time shall be checked by the quality control personnel every 6 months; every 3 months when valves are actuated.

### **3.6 MAINTENANCE DURING STORAGE PERIOD**

- a- internal surface must be inspected to check complete dust or other foreign parts absence
- b- old rust or any dust must be removed by wiping with proper solvent
- c- after cleanings, ball valves must be lubricated by using an adequate lubricant
- d- ball valves must be operated for a least 2 complete cycles

### **3.7 HANDLING**

For valves bigger than 2" it is advisable to use flat slidings to be applied between the hoister and the end hub. No other system is advisable since it could be risky. On large valves over 250kg there are lifting eyes and standing feet for easy transportation and handling.

## **4.0 INSTALLATION**

### **4.1 THE BALL VALVES MAY BE INSTALLED IN ANY POSITION USING A STANDARD PIPE FITTING PRACTICES**

### **4.2 INFORMATION AND CAUTION BEFORE INSTALLATION OF THE VALVE**

- a- pipe must be free of tension
- b- pipe must be flushed to clean the dirt, burrs, calamines, welding residues etc. which would damage ball and seats
- c- the valve must be kept in OPEN POSITION during installation and protective plastic cover must be removed only at the moment of installation
- d- at the moment of the shipment the ball is lubricated with a pure vaseline oil, which can be easily removed with a solvent if required
- e- ball valves normally have a space between ball and inside cavity of the body which could trap the product, care should be taken to drain the cavity.
- f- care should always be taken to install the automated ball valves. Check for a correct actuator rotation and well done electrical connection

#### 4.3 INSTALLATION OF THREADED ENDS

Use conventional sealant such as hemp core, pipe etc

#### 4.4 INSTALLATION OF WELDED ENDS BALL VALVES

All Weld ends Starline Ultrastrar valves are supplied with minimum 100mm integral nipples to avoid seats damages during welding operations.

Welding Instruction: with valve in open position tack weld in four points on both ends and then complete the welding without dismantling the valve and control for easy operation

#### 4.5 INSTALLATION OF FLANGED ENDS

Easy fitting on the adequate bolts, nuts and gaskets.

#### 5.0 OPERATION

**CAUTION!** during the operation the ball valves must be in either complete OPEN or CLOSED position in order to ensure their smooth and efficient working and long duration of seats.

Leaving the ball in half open position could eventually cause damage to the sof seats.

#### 5.1 MANUAL OPERATION

The opening and closing of the valve is done by turning the handle a quarter turn (90°)

a- valve is in open position when the handle is in line with the valve and pipe line

b- valve is in closed position when the handle is across the pipe line

#### 5.2 AUTOMATED OPERATION

Valve can be automatically operated by: A: pneumatic actuators (DA or SR), B: hydraulic actuators C: electrical actuators D: gear box (manually operated). In this case no stop is fitted on the valve since it is normally a part of the actuators.

#### 6.0 MAINTENANCE

**CAUTION!** Before starting the maintenance be sure that all pressure on the pipe is relieved.

- open and close the ball valve at least once to release the pressure completely also from the valve body.

- the ball valves if correctly used, normally do not need any internal lubrication and maintenance. However, when necessary, ball , or seats can be replaced only by relatively qualified personnel following the instruction of the manual without needs to use any machinery.

- for further information about the recommended SPARE PARTS LIST please check drawing, catalogue or contact the factory.

#### 6.1 SAFETY PRECAUTION BEFORE REMOVING THE BALL VALVE FROM THE LINE FOR DISASSEMBLE

a- check that all pressure is exhausted from the line (upstream and downstream) and half open the ball to ensure that no pressure is trapped in the body cavity. In other words it must be drained of all fluid/gas and pressure.

b- remove the valve from the line and cycle valve at minimum 1 full cycle to ensure that any pressure trapped is released

c- **CAUTION!** If the fluid in the line and into the valve is toxic, inflammable, corrosive or damaging for any other reason, it is advisable to take following precaution during the valve repairing:

- use protective eye mask or glasses

- use gloves, overalls and suitable footwear

- ensure that running water and fire extinguisher is easily available at any moment

#### 7.0 VALVE DISASSEMBLY

a- unscrew the adaptor bolts (part n.16)

b- take out the adaptor flange (part n.13) from the body (part n.12) one by one on both sides.

c- take out the seats (part n.10-10a-34) from the adaptor flanges (part n.13) in such a way not to allow the seat springs (part n.31) to come out from their housing.

d- unscrew the upper flange screw (part n.2c) and the top cover screw (part n.2a)

e- unscrew the trunnion retainer screw (part n.2b)

f- take out the trunnion (part n.32)

g- take out the ball (part n.9)

h- take out the stem (part n.5)

## 8.0 INSPECTION AND REPLACEMENT

With the valve completely disassembled, clean and examine all the following components:

- a- surface of the ball: any surface defect, particularly in the seating area will be extremely detrimental to the performance of the valve and therefore the ball should be replaced if found defective
- b- seats: replacement of seats is recommended—see paragraph 8.1
- c- stem seals and body seals: also to be discharged and replaced by a new one
- d- remaining components of the valve: after cleaning it is required a careful examination for wear, corrosion and mechanical, damages particularly on threaded components. If components are found defective they should be replaced.

### 8.1 SEAT REPLACEMENT (PART N.10-10A-34)

The seat is to be considered as one particular only and it will be supplied already complete with insert seat (part n.10) seat ring (part n.10a) and seat o-ring (part n.34). Should You only need to replace the seat ring and o-ring You just have to take them out and replace with new ones.

## 9.0 VALVE RE-ASSEMBLY

Clean inside of body and stem housing. A light oil/grease compatible with line fluid can be used on ball, seats and stem surfaces

- a- insert the upper stem (part n.5) in the body
- b- insert the ball (part n.9) in the body below the stem
- c- insert the trunnion (part n.32) in the body
- d- tighten the trunnion retainer screws (part n.2b) to fix it to the body
- e- verify that the ball (part n.9), the upper stem (part n.5) and the trunnion (part n.32) are easily operated by turning the upper stem
- f- put the top cover screws (part n.2a) and the upper flange screw (part 2c) to fix it to the body
- g- operate the “semi-assembled” valve to verify that everything is all right
- h- verify that all the seat springs are in the adaptor flange housing and then position the seat (part 1010a-34) in the adaptor flange housing
- i- put the adaptor flange (part n.13) on the body and take care not to damage the adaptor fire seal (part n.11) on the adaptor o-ring (part n.35)
- j- tighten the adaptor bolts (part n.16) being careful to do it correctly (first bolt and then the corresponding one at 180°)
- k- repeat the same operations (points i-j) for the other adaptor flange

## 10.0 TESTING

- a- after having completed the re-assembly check for the manoeuvrability of the valve and make sure that ball rotates freely
- b- if facilities are available, test the ball valve to the appropriate specification

## 11.0 AUTOMATED BALL VALVES

- a- if the valve is automated, reinstall the actuators and please note that the handle is not used. If necessary, reset the stops. First set the valve in open position and check that ball is fully open. Second set- the valve in closed position and check, adjusting if necessary, for the best closure.
- b- CAUTION! Valves with electrical actuators should be tested starting from valve in: HALF OPEN- HALF CLOSED POSITION. This is to ensure that electrical connection is all right and rotation is correct. In case of wrong position switch off electrical actuators immediately and change the direction. Limit and torque switches are ineffective if rotation is wrong.