



## Instructions for installation, operating and maintenance of the series AF20D ball valves (fire-safe)

red handle = Fire-safe ball valve  
(with graphite body seals and packing)

### 1. General Information

For the protection of the ball and seat ring, piping should be flushed prior to installation of the valve and cleaned from any impurities, welding residues etc. The selection of the ball valve is the responsibility of the operator. Dimensions, materials, spare parts and range of operation of the ball valve can be found in the "Series AF20D" ball valve brochure.

### 2. General installation

The direction of flow and the mounting position of the ball valve can be freely selected (except ball valve with relief bore and direction arrow). Assembly must be carried out according to the recognised rules of the technology. In case that the ball valves have weld end, the connections at the welds should be free of scale and grease (bare metal). The sealing surface of the connection must not be damaged.

#### 2.1 Installation of the ball valve in open position

In order to avoid a damage on the ball, we recommend the assembly in open position.

For actuated valves the "fail-safe position" is to be borne in mind, or if necessary dismantle the actuator unit prior installation in the pipeline.

#### 2.2 Installation of the ball valve in closed position

The ball, seat and support ring can easily fall out. The ball projects over the middle part in size DN 65 - DN 100 valves. In order to avoid damages on the ball at welded connections, the piping should be able to be slightly pressed apart.

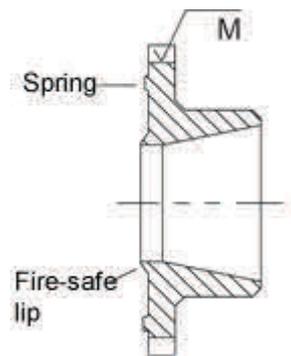
### 3. Installation in the part

#### 3.1 Installation in assembled state

The type AF20D can be recognised by its red handle. The ball valve has graphite body seals and packing. Firesafe ball valves are delivered **tightly bolted** (see tightening torques for body bolts on page 3). They can be welded into the piping in open position without dismantling, provided that attention is paid to a low heat input and a rapid heat dissipation (forming) in order to protect the seats. At the same time a maximum temperature of 130°C at the measuring point "M" must not be exceeded.

#### 3.2 Installation in a loose state

However, if the ball valves are disassembled and the connections are welded separately, new graphite body seals are to be inserted (pre-compressed graphite seals are to be cleanly removed beforehand). The middle part should first be replaced with a welding gauge, in order to define the measurement A1. As a result of the Firesafe construction with a tongue and groove joint, attention must be paid to the protruding spring (1.3mm) and the Firesafe lip at the weld end when inserting the middle part. In order not to damage this during assembly, the piping must be able to move axially at least 3 mm.



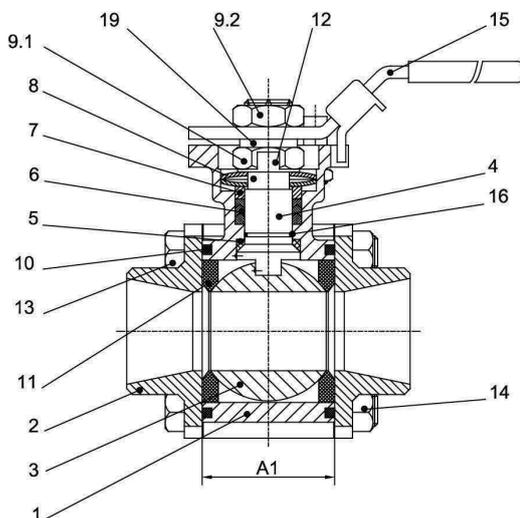
#### 4. Replacement of seats and seals

Care must be taken to ensure that the ball valve has cooled down and is pressure-less prior to dismantling. To relieve internal pressure, the ball valve should be opened and closed once. Only original spare parts have to be used.

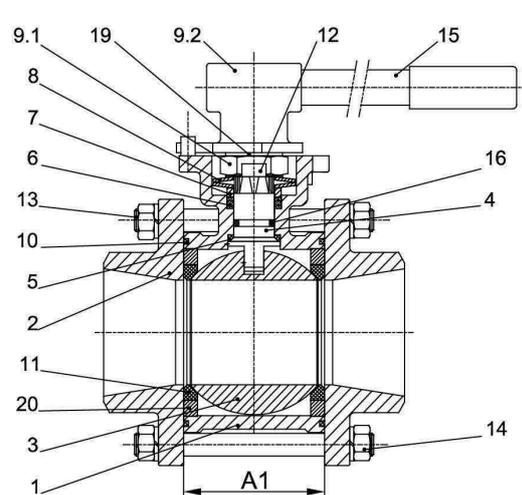
Loosen nuts (14), remove hexagon bolts (13) and remove the ball valve middle part in the open position (1) and then rotate to the closed position. Remove the body seals (10), seat rings (11) with support rings (20) (for DN 65 - DN 100 only) and the ball (3). Remove nut, adapter (for DN 65 - DN 100 only) (9.2) and handle-lever (15) or actuator unit, open the locking plate (12), and remove nuts (9.1), belleville spring washer (8), pressure ring (7) and spacer ring (19). Move the spindle (4) inwards with a nylon hammer and remove, then remove the O-ring (16), packing (6) and sealing ring (5). Clean the spindle (4) and body (1) free of any residues.

#### 5. Assembly

Push the sealing ring (5) onto the spindle (4), then pull on the O-ring (16). Lubricate spindle with grease (recommendation: Fin Food Grease 2) and place from the inside into the body (1). Insert graphite packing (6) and pre-compress additionally with a fitting sleeve. Replace pressure ring (7) and belleville spring washer (8), replace locking plate (12), screw on the nut (9.1) and tighten with the torques given below, secure the nut (9.1) with the locking plate (12). Replace the handle-lever (15), screw on the nut (for the DN 65 - DN 100 adapter only) and tighten. Open the ball valve with the handle-lever (15) and check for operational reliability. Insert the ball (3), the cleaned support ring (20) (for DN 65 - DN 100 only), the seat rings (11) and the body seals (10) into the body (1). Lubricate body bolts with grease (recommendation: Fin Food Grease 2) (prevents corrosion); mount body and connections with nuts (14) and bolts (13) and tighten the body bolt (page 3) with the tightening torques given below, taking section 2 into consideration.



DN15-50



DN65-100

**Tightening torques for the body bolts 13/14 with lubricated thread:**

DN	8/10	15	20	25	32	40	50	65	80	100
Bolt/nut (13/14)	M6	M6	M8	M8	M10	M10	M12	M14	M16	M16
Torque Nm	10	14	17	22	24	41	45	49	54	57

**Tightening torques for the spindle nut (9.1)**

DN	8/10	15	20	25	32	40	50	65	80	100
Torque Nm	10	10	13	13	16	16	22	22	25	25

**6. Operation/ Commissioning**

During operation the ball valve must not be dismantled, nor may the bolts be replaced. A function test has to be carried out during start-up. If there is any doubt about the functionality, the ball valve has to be replaced.

**7. Maintenance and storage**

Provided that the ball valves are correctly designed, have been assembled according to the instructions and are operated in an on/off function, the ball valves do not require any special maintenance (except from wear parts). In case of leakage, tighten up the body bolts (13) or the spindle nut (9.1), or replace the seat (11) or the spindle packing (6) (take note of section 4). If tightness is not achieved, the faulty parts must be replaced according to the instructions under paragraph 4. The ball valves are to be stored in open position and protected from grime and damage.

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