

Model 20 and 2R Handwheels

Instruction Manual (Rev. A)



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Safety Information

Important - Please read before installation

These instructions contain **DANGER**, **WARNING**, and **CAUTION** labels, where necessary, to alert you to safety related or other important information. Read the instructions carefully before installing and maintaining your control valve. **DANGER** and **WARNING** hazards are related to personal injury. **CAUTION** hazards involve equipment or property damage. Operation of damaged **equipment can, under certain operational conditions, result in degraded process system performance that can lead to injury or death. Total compliance with all DANGER, WARNING, and CAUTION notices is required for safe operation.**



This is the safety alert symbol. It alerts you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



When used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in property damage.

Note: Indicates important facts and conditions.

About this Manual

- The information in this manual is subject to change without prior notice.
- The information contained in this manual, in whole or part, shall not be transcribed or copied without Baker Hughes's written permission.
- Please report any errors or questions about the information in this manual to your local supplier.
- These instructions are written specifically for the Model 20 and 2R handwheel, and do not apply for other device outside of this product line.

Useful Life Period

The current estimated useful life period for the Model 20 and 2R handwheel is 25+ years. To maximize the useful life of the product, it is essential to conduct annual inspections, routine maintenance and ensure proper installation to avoid any unintended stresses on the product. The specific operating conditions will also impact the useful life of the product. Consult the factory for guidance on specific applications if required prior to installation.

Warranty

Items sold by Baker Hughes are warranted to be free from defects in materials and workmanship for a period of one year from the date of shipment provided said items are used according to Baker Hughes recommended usages. Baker Hughes reserves the right to discontinue manufacture of any product or change product materials, design or specifications without notice.

Note: Prior to installation:

- The valve must be installed, put into service and maintained by qualified and competent professionals who have undergone suitable training.
- All surrounding pipelines must be thoroughly flushed to ensure all entrained debris has been removed from the system.
- Under certain operating conditions, the use of damaged equipment could cause a degradation of the performance of the system which may lead to personal injury or death.
- Changes to specifications, structure, and components used may not lead to the revision of this manual unless such changes affect the function and performance of the product.

1. Introduction

The following instructions are designed to assist maintenance personnel in performing most of the maintenance required on **Masoneilan™ Model 20 (linear) and 2R (rotary) handwheel**. Baker Hughes has highly skilled service engineers available for start-up, maintenance and repair of our handwheels and component parts. In addition, a regularly scheduled training program is conducted at the Training Center to train customer service and instrumentation personnel in the operation, maintenance and application of our control valves and instruments. Arrangements for these services can be made through your Baker Hughes Representative or Sales Office. When performing maintenance, use only replacement parts. Parts are obtainable through your local Baker Hughes Representative or Sales Office. When ordering parts, always include Model and Serial Number of the unit being repaired.

1.1 Product Description

The following instructions are designed to guide the user during the installation and maintenance of the Model 20 and 2R handwheel. The Model 20 handwheel is a modular design that can be utilized on many Masoneilan globe control valve designs such as 21000, 41005 and **LincolnLog™ 18400 Series**.

The Model 2R handwheel can be utilized on rotary control valves designs such as 35002 Series **Camflex™**.

1.2 After Sales Service

Baker Hughes has a highly skilled After Sales Department available for start-up, maintenance and repair of our equipment. Contact the nearest Baker Hughes local representative or After Sales Department. Valve and actuator serial plates including QR codes can help to access service history and local service partner for support.

1.3 Spare Parts

For maintenance, always use only original spare parts obtained through your local Baker Hughes representative or Spare Parts Department. When ordering spare parts, the model and serial numbers indicated on the manufacturer's serial plate must be provided to the Baker Hughes representative. Recommended spare parts can also be accessed through QR codes located on valve and actuator serial name plates.

1.4 Valve and Actuator Accessories

The Model 20 or 2R handwheel is installed on a valve. There is a particular instruction manual for each valve model, as well as for all other accessories installed on the full assembly. Consult the appropriate valve instruction and operations manual for more details on the particular installation.

Note: This manual describes all standard options of the Model 20 and 2R handwheel. In order to meet the particular requirements of your application, Baker Hughes may have developed a special option covered by an Appendix to the present manual. If this is the case, the instructions of this Appendix always prevail over the general manual instructions.

2. General

These installation and maintenance instructions apply to the Masoneilan Model 20 and 2R handwheel, regardless of the valve body on which it is used.

3. Handwheel Description

The Model 20 and 2R is a manual handwheel. The multiple sizes, strokes and spud diameters can accommodate assembly on many different valves size ranges and models.

4. Unpacking

Care must be exercised when unpacking the equipment to prevent damage to the accessories and component parts. Should any problems arise, contact your Baker Hughes representative or local office.

5. Actuator Removal

Maintenance on the valve body normally requires removal of the valve handwheel. The steps in removal of the handwheel can be different depending on whether the handwheel includes stem boot, travel stop or stem block.

5.1 Model 20 with Stem Boot version

- A. Remove the retaining ring (B116) on stem boot. Loosen stem block screw and nut. Remove stem lock and stem block.
- B. Remove stem boot.
- C. Check the stem position against the travel scale to ensure that the plug is up (off the seat).
- D. Loosen stem lock nuts (1).
- E. Re-tighten lock nuts (1) against each other so they will lock at a point that is not against the stem flange (2).

CAUTION

At this time provisions must be made to support and lift the actuator off the body using recommended lift supports and procedures.

5.2 Model 20 with Travel Stop version

- A. Loosen jam nut lock nuts (A909) at top of the stem and remove. Loosen stem block screw and nut. Remove stem lock / stem block.
- B. Loosen jam nuts at bottom (A909) and remove.
- C. Check the stem position against the travel scale to ensure that the plug is up (off the seat).
- D. Loosen stem lock nuts (1).
- E. Re-tighten lock nuts (1) against each other so they will lock at a point that is not against the stem flange (2).

CAUTION

At this time provisions must be made to support and lift the actuator off the body using recommended lift supports and procedures.

5.3 Model 20 with Stem Block version

- A. Loosen stem block screws and nuts (C906 and C919) and remove from stem block. Loosen and remove arm indicator screw and nut (C922 and C913).
- B. Remove stem block.
- C. Check the stem position against the travel scale to ensure that the plug is up (off the seat).
- D. Loosen stem lock nuts (1).
- E. Re-tighten lock nuts (1) against each other so they will lock at a point that is not against the stem flange (2).

CAUTION

At this time provisions must be made to support and lift the actuator off the body using recommended lift supports and procedures.

5.4 Model 2R Handwheel

- A. Remove the mounting bracket to handwheel bolts from mounting bracket.
- B. Lift the 2R handwheel with caution.
- C. Remove the key from the key slot.

Model 20 Handwheel - Parts Reference List

Ref. No	Description
A001	YOKE
A024	STEM LOCK
A069	JACK NUT
A703	SERIAL PLATE
A715	TRAVEL INDICATOR
A904	NUT, HEX.JAM
A907	NUT, HEX. HEAVY
A909	NUT, LOCK
A916	SCREW, SLOTTED PAN HEAD
B116	CIRCLIPS (EXTERNAL)
B216	BEARING PLATE
B727	SHIM
B740	STEEM BOOT
C004	HANDWHEEL
C013	HANDWHEEL KEY
C023	COVER PLATE
C069	JACK SCREW
C715	TRAVEL INDICATOR
C726	BEARING, THRUST BALL
C902	DRIVE SCREW
C903	TAPPER PIN
C906	NUT, HEX
C913	HEX. HEAD CAP SCREW
C915	SCREW, HEX.SOCKET HEAD CAP
C919	STUD
C922	WASHER, SPRING LOCK
K007	FITTING KIT
M924	SCREW FILLISTER

Model: Handwheel 20
Size: 12 and 18 with Stem Boot

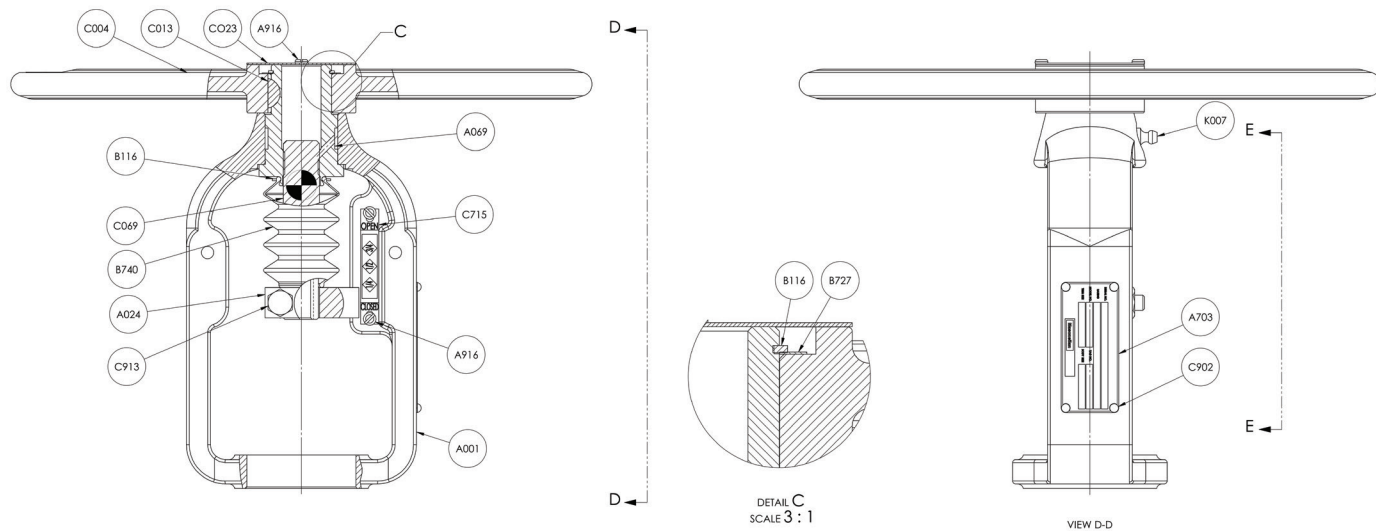


Figure 1

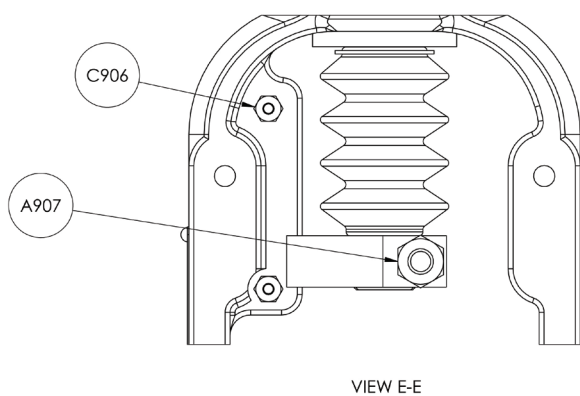


Figure 2

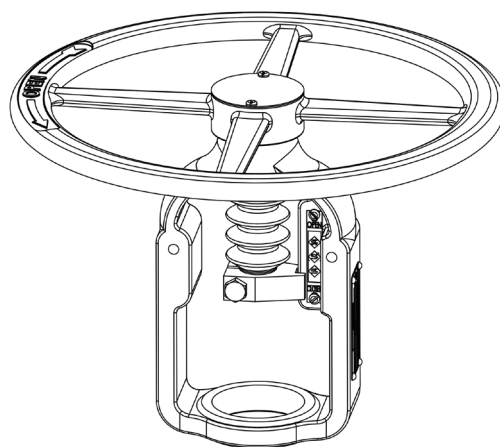


Figure 3

Model: Handwheel 20
Size: 12 and 18 with Travel Stop

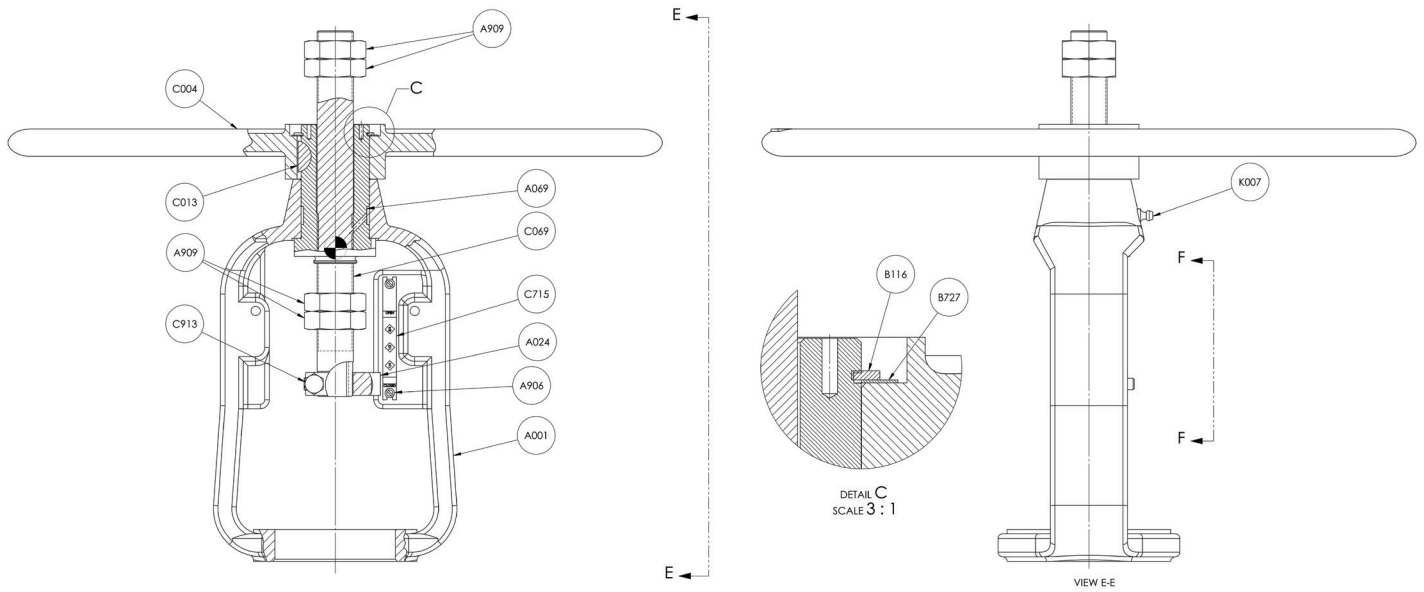


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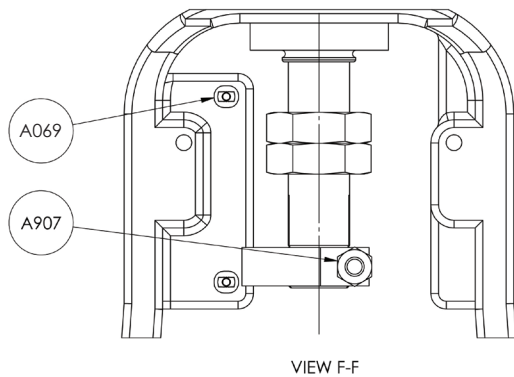


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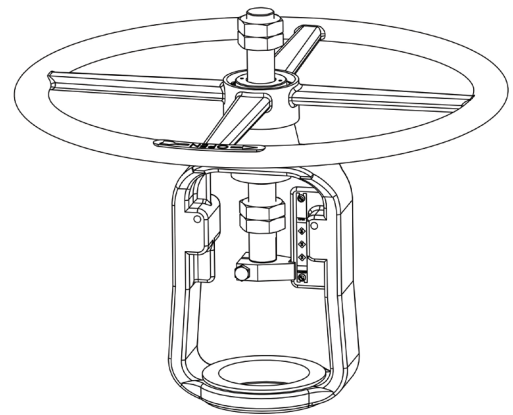


Figure 6

Model: Handwheel 20
Size: 18 with Stem Block

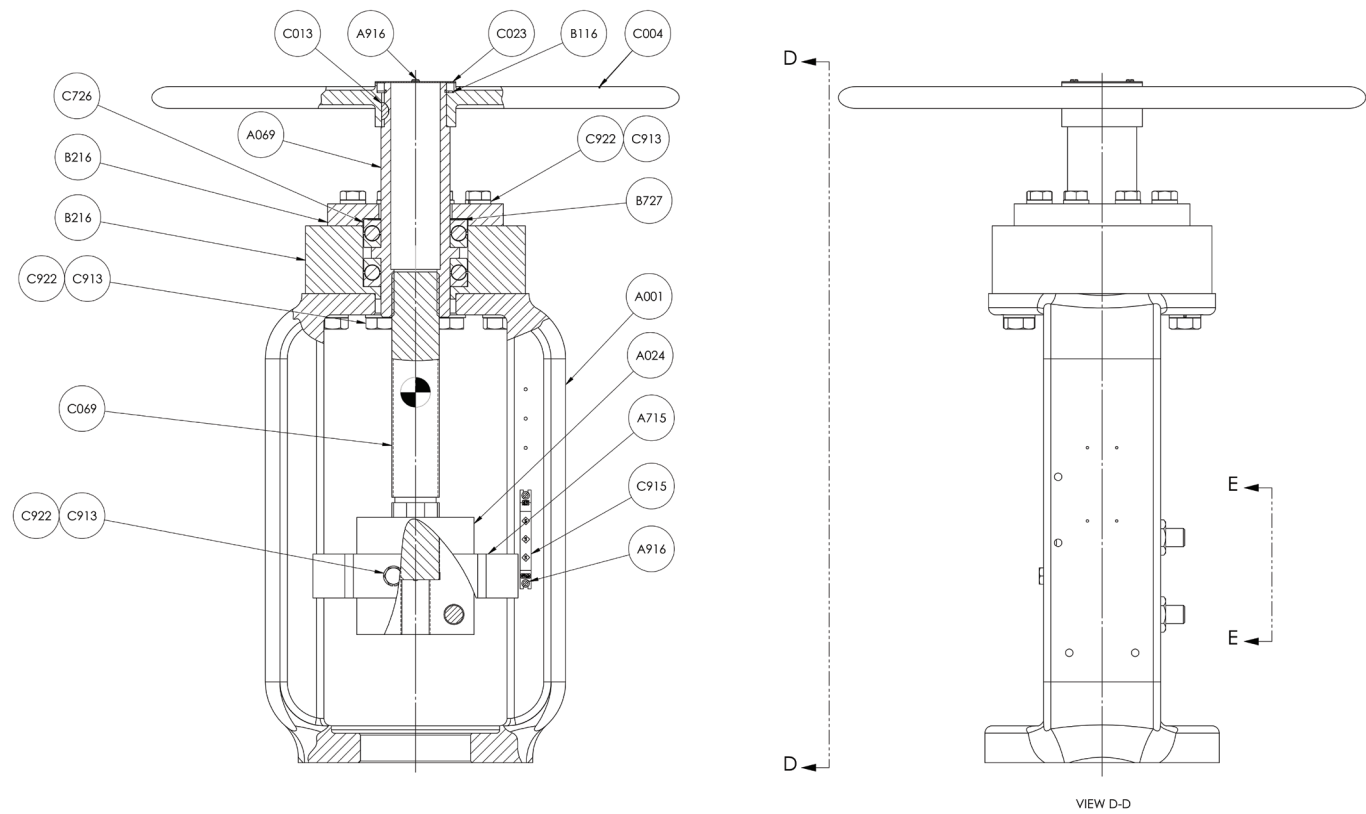


Figure 7

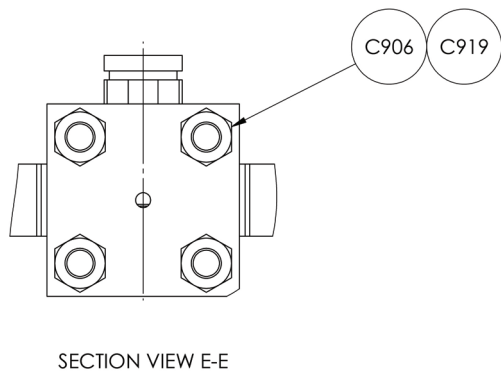


Figure 8

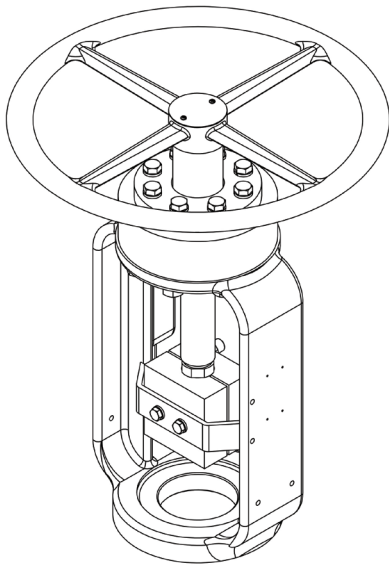
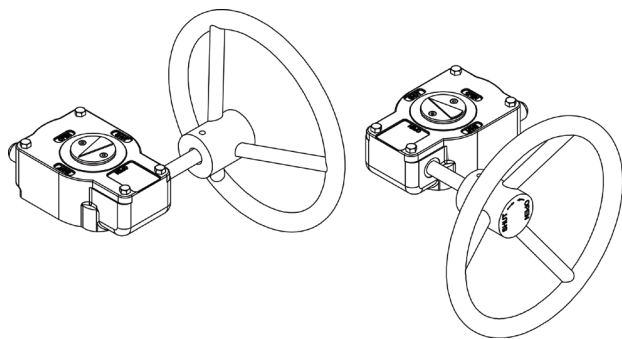


Figure 9

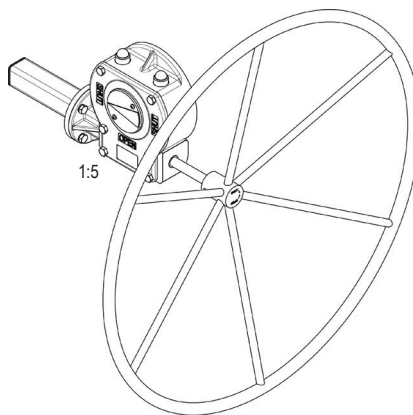
Model 2R Handwheel - Parts Reference List

Serial No.	Actuator Parts No.	Handwheel Description	Specifications
1	721045587-888-0000	3" AB150	Buy-out assembly
2	721045588-888-0000	3" AB210	Buy-out assembly
3	721045589-888-0000	4" AB210	Buy-out assembly
4	721045590-888-0000	4" AB215	Buy-out assembly
5	721045591-888-0000	6"and 8" AB215	Buy-out assembly
6	721045597-888-0000	6"and 8" AB550	Buy-out assembly
7	721045600-888-0000	10" AB215	Buy-out assembly
8	721045601-888-0000	10" AB550	Buy-out assembly
9	721045602-888-0000	12" AB550	Buy-out assembly
10	721045604-888-0000	12" IW46	Buy-out assembly
11	721045607-888-0000	14"and 16" IW46	Buy-out assembly
12	721045608-888-0000	14" and 16" AB1250	Buy-out assembly

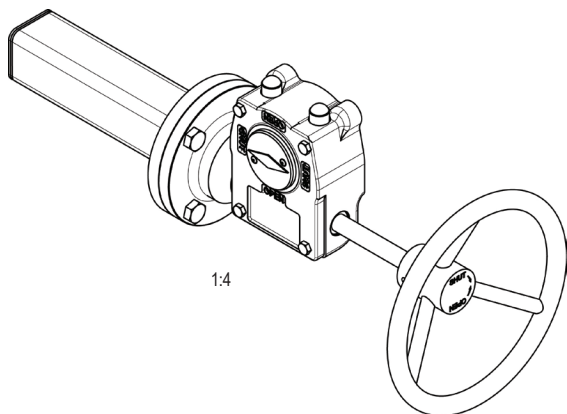
Model AB150



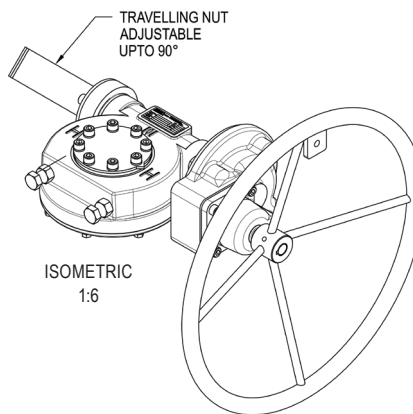
Model AB1250



Model AB210, AB215, AB550



Model IW46



6. Handling/Lifting

Various valves assembled with handwheel Model 20 and 2R can be lifted using lifting lug. Lifting lug is a series of ring that allow handling valve on field. The lifting lug can be installed on valve body/bonnet stud. Shackle is connected to lifting lug attached in valve by using sling valve can be moved to various places needed. Below Figures 10 and 11 show lifting method of valves with handwheel 20.

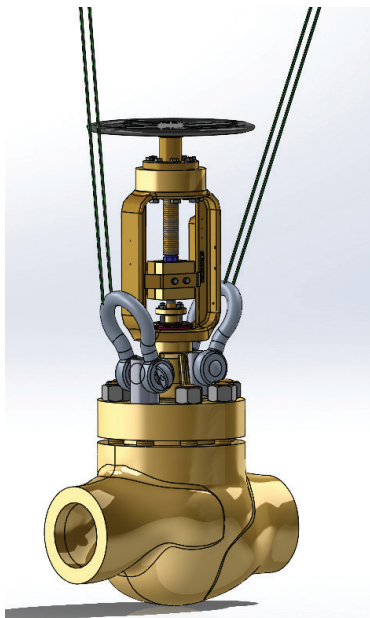


Figure 10

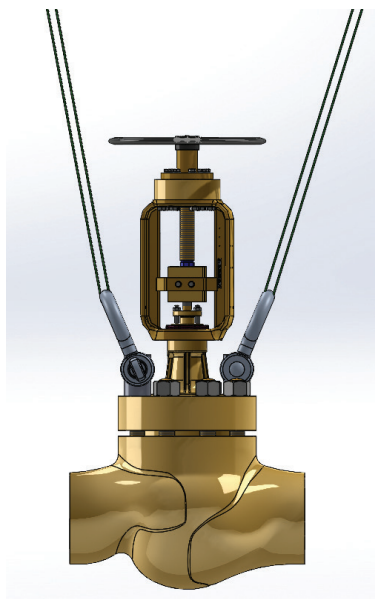


Figure 11

Based on valve size and series equivalent lifting lug and shackle can be selected.

Note: *It is not recommended to use the yoke for lifting the valve once it has been assembled with the handwheel, as doing so will hinder the valve's actuation during testing and other activities.*



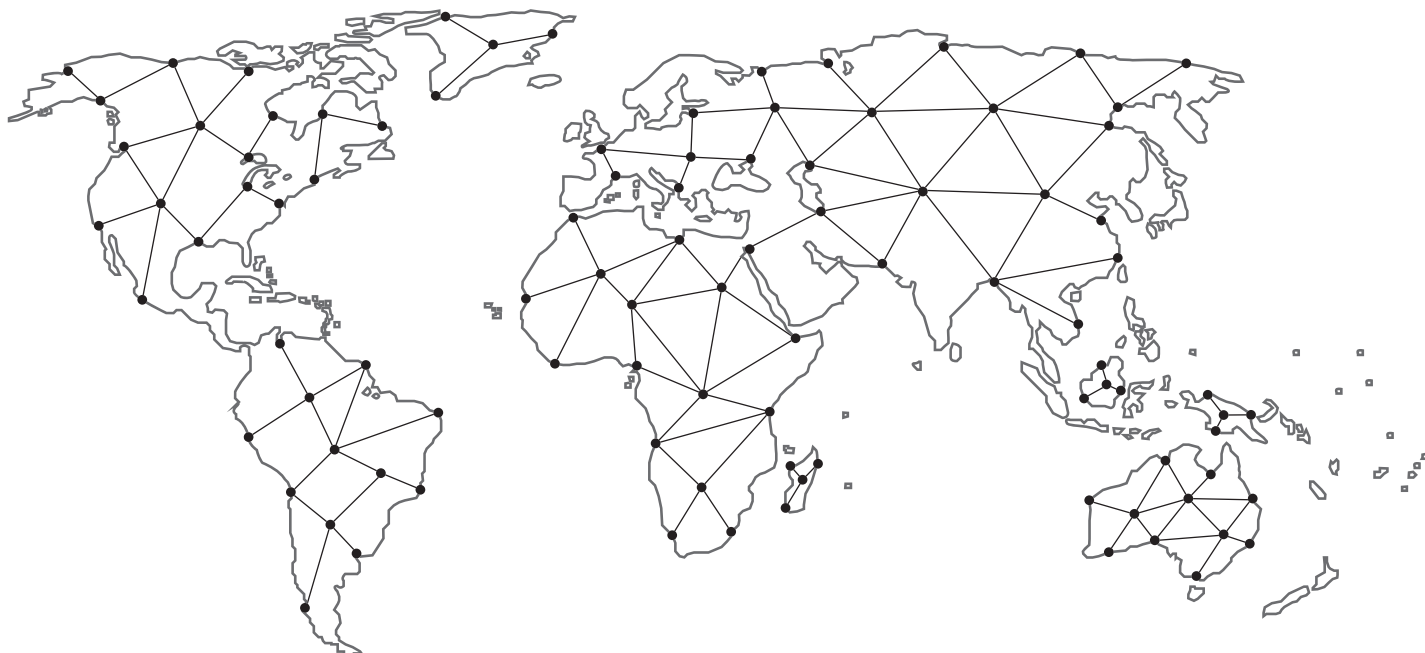
Figure 12

Above pictures show the handling of valve with handwheel 20 in shop floor.

- Check if there is any lifting provision in valve
- Use spreader bar and D-shackle tool to lift the valve
- Ensure sling is not load in handwheel, if loaded, adjust sling in spreader bar

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