

## **MARITZA EAST I Power Station**

### **Maintenance Manual**

**Maintenance Manual Number:**

**KKS Code:** 01 LCL10 AA002

**Equipment Description:** Valves KSB – Type STAAL 40 AKDS  
DN 200

**Supplier**

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**Supplier Document Number:**

**Revision Date:** 28.04.2009

## Gate valves

with bolted bonnet

flanged  
or  
with butt weld ends



AKD



AKDS

**PN 10-40**  
**DN 50-800**

## Fields of Application

- In industrial plants, power stations, process and marine engineering
- For water, steam, gas, oil and other non-aggressive fluids
- Other fluids on request

## Operating Data

- Maximum permissible pressure 40 bar
- Maximum permissible temperature 400 °C
- Selection as per pressure-temperature ratings (see overleaf)

## Materials

- DN 50-200 P 250 GH <sup>1)</sup> 1.0460
- DN 250-800 P 265 GH <sup>2)</sup> 1.0425

## Design

- Body forged or of welded steel construction
- Bolted bonnet
- Non-rotating stem with external screw
- Wedge-type
- Yoke head designed for mounting electrical actuators and gearing (DIN ISO 5210)

The valves meet the safety requirements of the Pressure Equipment Directive 97/23/EC (PED) of Annex I for fluids of the groups 1 and 2.

<sup>1)</sup> previously: C 22.8

<sup>2)</sup> previously: H II

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## Standard Variants

- Stem protecting tube
- Stem protecting tube with position indicator
- Stem protecting tube with position switch
- Bypass with shut-off valve
- Drain branch
- Electrical actuators
- Installation kit for actuators and gearing
- Stellite sealing surfaces
- Other flange or butt weld end designs
- Inspections to technical codes such as TRD/TRB/AD2000 – German Steam Boiler / Pressure Vessel Regulations – or to customer specification
- From DN 900 on request

## Additional Information

- STAAL® 40 swing check valves with bolted cover see type series booklet: 7365.1
- Operating instructions: 7364.8

## Purchase Order Data

- |                         |                               |
|-------------------------|-------------------------------|
| 1 Type                  | 7 Material                    |
| 2 PN                    | 8 Fluid                       |
| 3 DN                    | 9 Flow rate                   |
| 4 Operating pressure    | 10 Pipe connection            |
| 5 Differential pressure | 11 Variants                   |
| 6 Operating temperature | 12 Type series booklet number |

When ordering spare parts, please indicate original works number and year of manufacture.

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, group II, category 2 (zones 1+21) and category 3 (zones 2+22) according to ATEX 94/9/EC.



## Pressure-Temperature Ratings

Nominal pressure PN	Material	Permissible operating pressures in bar at temperatures in °C 1)							
		to 50	100	150	200	250	300	350	400
10	P 250 GH 2) / P 265 GH 3)	10	9,3	8,7	7,8	7,1	6,4	6,0	5,8
16		16	14,9	13,9	12,4	11,4	10,3	9,6	9,2
25		25	23,3	21,7	19,4	17,8	16,1	15,0	14,4
40		40	37,3	34,7	30,2	28,4	25,8	24,0	23,1

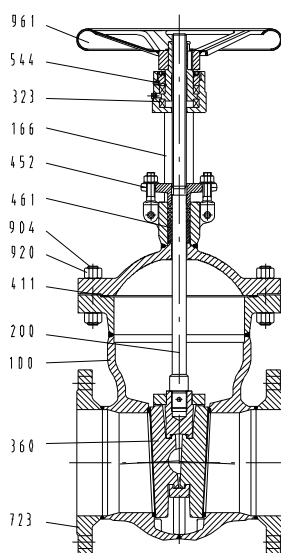
Operating pressures to DIN 2401 are also permitted

1) In acc. with EN 1092/1 temperature range down to -10 °C

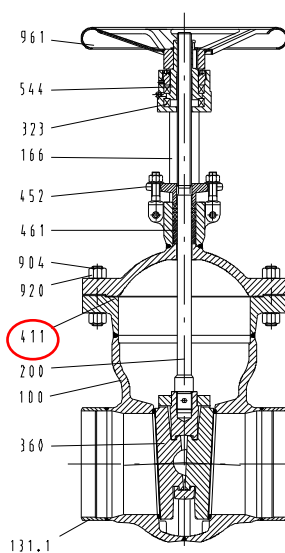
2) previously: C 22.8

3) previously: H II

**PN 10-40:**  
DN 50-200

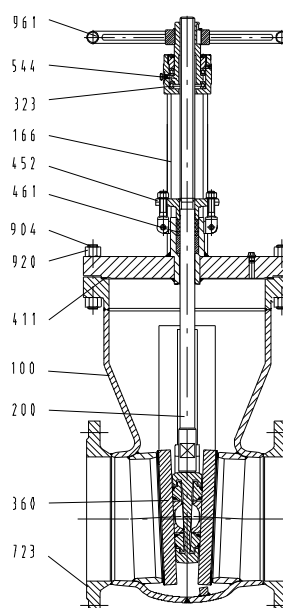


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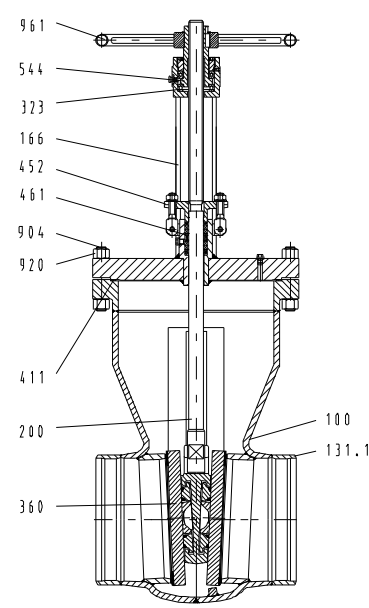


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**PN 10-25:**  
DN 250-400

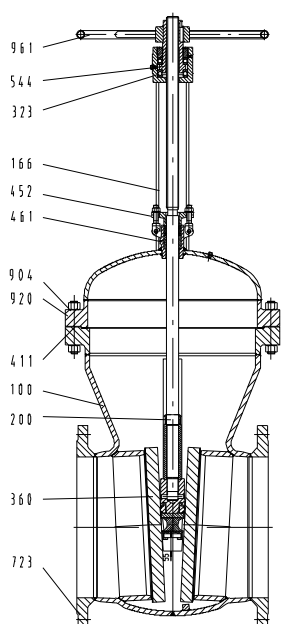


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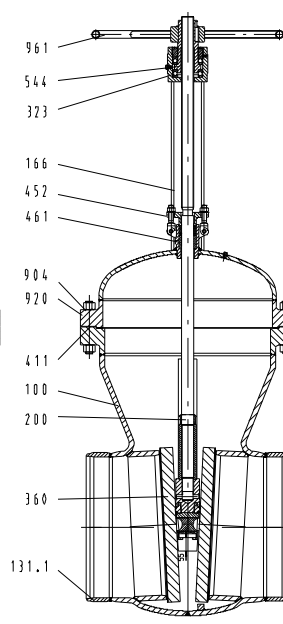


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**PN 10-25:**  
DN 450-800

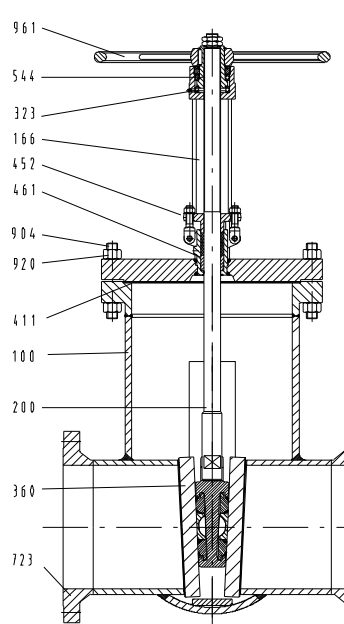


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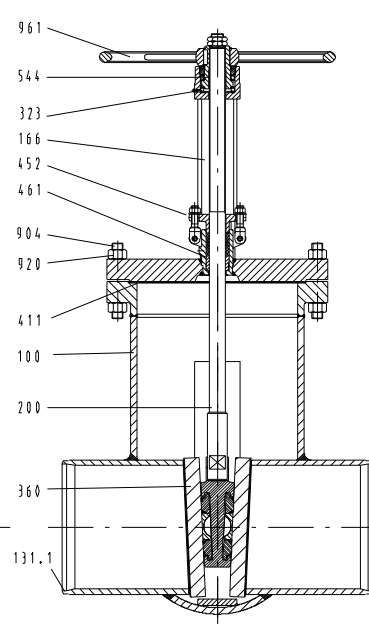


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**PN 40:**  
DN 250-800



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## Materials

Part No.	Description	Materials	Notes
100	Body	P 250 GH 1.0460 P 265 GH 1.0425	≥ DN 250
131.1	Connecting branch	P 235 GH 1.0305 P 265 GH 1.4250	≥ DN 500
166	Yoke	P 250 GH 1.0460 P 265 GH 1.0425	≥ DN 250
200 *)	Stem	X 20 Cr13 1.4021	
323 *)	Thrust bearing	St	
360 *)	Wedges	P 250 GH 1.0460 P 265 GH 1.0425	≥ DN 250
367 *)	Wedge holder	P 250 GH 1.0460 P 265 GH 1.0425	≥ DN 250
Sealing surfaces	Body	X 8 CrTi 18 1.4502	17 % chrome steel
	Wedges	X 20 CrMo 17.1 1.4115	
411 *)	Joint ring	Pure graphite	
452	Gland cover	P 250 GH / P 265 GH 1.0460 / 1.0345	
461 *)	Gland packing	Pure graphite	
544 *)	Threaded bush	9SMnPb 28 K 1.0718	nitrated
723	Flange	P 250 GH 1.0460	
904	Screw bolt	24 CrMo 5 1.7258	
920	Hex. nut	C 35 E 1.0501 / 1.1181	
961	Handwheel	Steel	

\*) Recommended spare parts

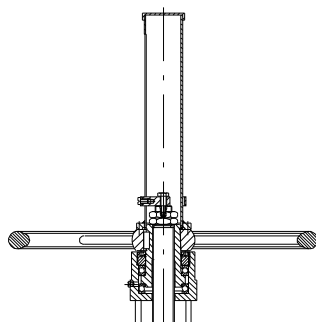
## Installation

**The gate valves are designed for a max. differential pressure equal to the permissible operating pressure.**

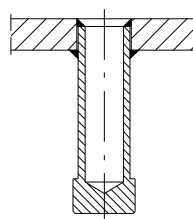
If a bypass line is required or requested for other reasons, a NORI 40 globe valve as per type leaflet 7621.1 should be used as bypass valve, depending on the nominal diameter of the gate valve:

Gate valve	Bypass
DN 150-200	DN 15
DN 250-350	DN 25
DN 400-600	DN 40
DN 700-800	DN 50

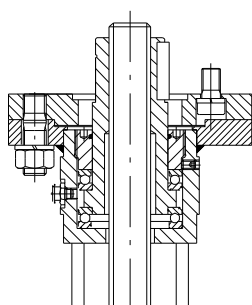
## Variants



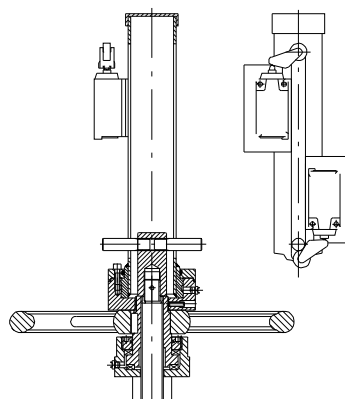
Stem protecting tube with position indicator



Drain branch



Actuator installation kit



Stem protecting tube with position switch