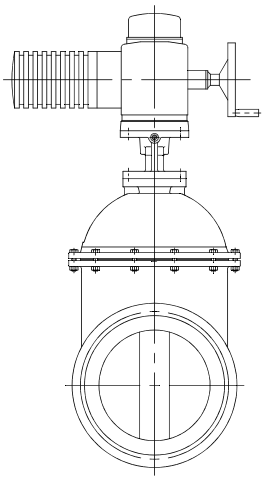
Operating Instructions

Wedge Gate Valve

Metallically seated,
With Non-rising or Rising Stem and
Electric Actuator



These operating instructions must always be used in combination with operating instructions BA01E001!

1 Description of Product and Range of Application

1.1 Wedge Gate Valve, Face-to-face dimension F4, DIN 3352

Sizes	Pressure ratings
40 – 150	PN 10/16
200 – 300	PN 6/10
350 – 500	PN 4/6/10
600 – 700	PN 2,5/4/6
800	PN 1,6/2,5
900 – 1000	PN 1/1,6
1200	PN 1

Prod. No.: 1080.... with non-rising stem
1081.... with rising stem and rising handwheel for DN 150 and smaller
1082.... with rising stem and non-rising handwheel for DN 200 and larger

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1.2 Wedge Gate Valve, Face-to-face dimension F5, DIN 3352

Prod. No.	DN range	Pressure ratings
2040.... 2041...	40 – 500	PN 25
2070.... 2071....	40 – 1000	PN 16
2060.... 2061....	40 – 1200	PN 10

Prod. No. 2040.... with non-rising stem
2041.... with rising stem and rising handwheel for DN 150 and smaller
with non-rising handwheel for DN 200 and larger

1.3 Wedge Gate Valve, Face-to-face dimension F15, DIN 3352

Prod. No.	DN range	Pressure ratings
3000.... inside. 3001.... outside	40 – 1000	PN 16
3020.... inside 3021.... outside.	40 – 1000	PN 25
3022.... inside. 3023.... outside.	40 – 400	PN 40
	1200	PN 10

1.4 Test pressure and admissible working pressure:

Pressure rating PN	Hydr. test pressure for body	Hydr. test pressure for seat	Max. admissible working pressure in bars at a working temperature of max.120°C for liquids	Max. admissible working pressure in bars at a working temperature of max. 150°C for liquids+gas[1)]
1 1,6 2,5	1,5 2,4 3,75	1 1,6 2,5	1 1,6 2,5	1 1,3 2
4 6 10	6 9 15	4 6 10	4 6 10	3,2 5 8
16 25 40	24 37,5 60	16 25 40	16 25 40	13 22 30

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[1)] When equipped with maintenance-free stem sealing: max. 70°C

2 Performance and Mode of Operation

ERHARD-Wedge Gate Valves are metallically seated isolating valves for “ON-OFF“ duty. They comply with the standard requirements of DIN 3352 parts 2, 5 and 6. The valve is closed in clockwise direction, e.g.by means of handwheel.

The gate Valve have been tested according to DIN 3230 at the manufactures´works for resistance and tigthness. They are suitable for both flow directions.

3 Installation into the Pipeline – Mounting

Remove all packing material from the valve. In order to protect the Gate Valves against damages they have to be transported by means of suitable lifting gears, e.g. broad belts. Do not use chains or ropes. Prior to installation examine the pipeline for impurities and foreign matter and clean it if necessary The valves can be installed in any position. It is important that they are well accessible for operation and maintenance. For outdoor installation the customer has to protect the valves against direct effects of the weather.

The flange gaskets to be used have to be suitable for the actual working temperature. Steel-reinforced rubber seals are recommended for temperatures below 70°C. During installation of the valve, the distance between the pipe flanges should exceed the face to face dimension of the valve by at least 20mm. Thus, the raised faces will not be damaged and the gasket can be inserted. The mating pipe flanges must be planeparallel and concentric. Thigten the connecting bolts evenly (without distortion) and crosswise. The pipe must not by any means be pulled up to the valve.

4 Initial Operation

After installation, check the valve for smooth operation moving it over the whole travel (OPEN-CLOSED) by means of the handwheel (see item 5.1 "Valve with mounted electric actuator").
The valve is operated by means of the handwheel of the electric actuator. Do not apply excessive forces or torques.

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Operation and Application

5.1 Valve with mounted electric actuator

The **electric actuator** is concentrically mounted on the yoke of the wedge gate valve. The stem of the gate valve is turned by means of the socket of the electric actuator. As a standard, the electric actuator is equipped with:

Torque and travel switches with 1 make and 1 break contact each
Blinker transmitter for running indication
Thermal switch in the motor winding.

The valve is switched off in the limit positions in the following manner:

Flat Body Wedge Gate Valves up to DN 500	**Closed:** torque dependent **OPEN:** travel dependent
Flat Body Wedge Gate Valves larger than DN 500	**Closed:** travel dependent **OPEN:** travel dependent
Oval Body Wedge Gate Valves of all sizes	**Closed:** torque dependent **OPEN:** travel dependent
Cylindrical Body Wedge Gate Valve of all sizes	**Closed:** torque dependent **OPEN:** travel dependent

During the tightness test at our factory at working pressure (=nominal pressure), the switching points of the limit switches are set in such a way that under electric operation they switch off in opening and closing direction. During this procedure, we take into consideration to avoid seizing or running against the upper mechanical limit stop of the gate valve due to after-running of the motor. The torque switches also serve as safety switches, e.g. in intermediate positions.

If the valve is supplied without mounted electric actuator all travel and torque switches have to be adjusted after the electric actuator has been mounted.
See paragraph “Initial operation: Readjusting the travel and torque switches”.

See paragraph “Initial operation: Readjusting the travel and torque switches”.

Observe the relevant safety measures (VDE/TAB etc.) and the instructions of the manufacturer of the electric actuator concerning transport, storage, initial operation and maintenance (operating instructions).

Electrical connection has to be effected according to Operating Instructions as well as wiring and terminal diagrams of the electric actuator's manufacturer (travel, torque and thermal switches, heating, motor). Before installation, the insulating resistance of the motor must be measured. If it is lower than 500 K-ohms, this shows that the winding is moist. The motor has to be removed in order to be dried up and it must be heated by means of a hot-air fan or in a heating chamber: max. admissible temperature 100°C.

Inching and manual emergency operation

A t t e n t i o n :

If a foreign body is jammed in when operating the valve, the torque switch for the corresponding direction responds and switches off the motor.

The time lag between response of the torque switch and disconnection of the motor from the network depends on the signal delay. If another closing order is given in the original direction, without having moved the valve sufficiently in the opposite direction, the torque will increase. If this procedure is repeated several times, the torque will accumulate. The valve and its operating elements are not designed for such an emergency and might be damaged.

We explicitly draw your attention to the fact that such "inching operation" is inadmissible.

Inching operation is admissible under the following conditions:

If the torque switch responds in intermediate position, the valve must first be moved in the opposite direction until the torque switch completely returns to its original position. Only now the valve may be moved again in the direction in which the disturbance occurred. Proceeding this way, you will obtain torques corresponding to the torques set at the torque switch. Moreover, the foreign matter can come off and be flushed out of the seating zone.

Operation by emergency handwheel:

If the valve is operated by means of the handwheel of the electric actuator, the torque switches do not provide any safety function.

If a foreign body is jammed with the valve being in intermediate position, excessive operating force - particularly in case of high gear reduction - might be damaging to the drive components. Therefore, we draw your attention to the following fact:
If any resistance is detected during emergency handwheel operation, some turns must be made in the opposite direction before the handwheel is turned again in the direction in which the disturbance occurred (flush out the foreign body). Continue operation with utmost care, in no case using excessive force. If need be, repeat flushing operation.

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5.2 Commissioning of the Electric Actuator

For commissioning the valve the Operating Instructions of the electric actuator's manufacturer are applicable, too.

5.2.1 Turn the Knife Gate Valve manually to intermediate position.
5.2.2 Check the gate movement and thus the direction of rotation of the actuator by brief electrical starting.
Valve is closing = CLOCKWISE direction of actuator rotation
Valve is opening = ANTI-CLOCKWISE direction of actuator rotation
5.2.3 In case of wrong direction of rotation, change poles of motor connection
5.2.4 Check direction of rotation by brief electrical starting
5.2.5 Check correct switching sequence of the torque switches in "Open-Close" direction by manual operation
5.2.6 Change poles if necessary
5.2.7 Move the valve over the whole travel only if the direction of rotation for closing the valve is CLOCKWISE.

In case of wrong direction of rotation, travel and torque switches are ineffective!

5.3 Resetting the travel switches:

5.3.1 Move the valve manually into "OPEN" end position
5.3.2 Return by a travel of approx. 5mm
5.3.3 Adjust the "OPEN" travel switch according to the Operating Instructions of the electric actuator's manufacturer
5.3.4 Move the valve manually into "Closed" end position
5.3.5 Adjust the "CLOSED" travel switch according to the Operating Instructions of the electric actuator's manufacturer

If these measures proposed by us are not observed, we cannot be made liable for any damages resulting thereof.

5.4 Inadmissible modes of operation

Continuous operation in throttled position leads to increased wear and tear.
The gate valves of this type are suitable for "Open-Closed" operation. For explicit regulating service, special valve types have to be used.
Extending the operating elements, e.g. by levers etc is not allowed.
The temperature limits for the flow medium must not be exceeded.
Do not exceed the limit values for the operating pressure.
The nominal pressure is the max. pressure to be applied on the closed valve.

6 Maintenance

Check for performance and tightness at regular intervals of max. 1 year. The stem parts accessible from the outside have to be greased regularly.
Recommended lubricant: KLÜBERSYNTH VR69-252
company Klüber Lubrication, Munich

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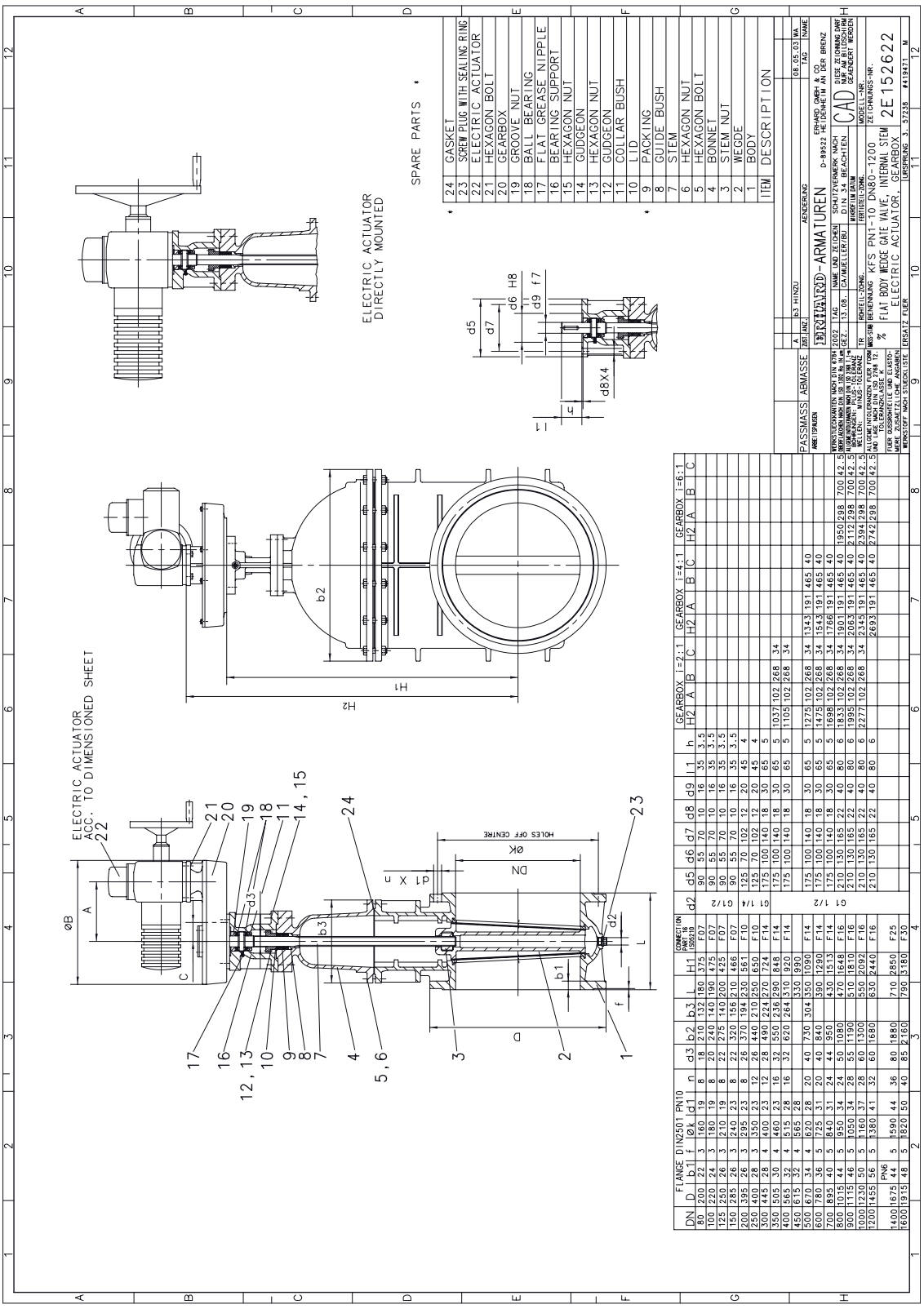
7 Drawing with spare parts list (2e152622)



DN	D	FLANGE DIN2501 PN10 b1	f	ø k	d1	n	d3	b2	b3	L	H1	CONNECTION ACC. TO ISO5210	d2	d5	d6	d7	d8	d9	l1	h	GEARBOX i=2:1 H2	A	B	C	GEARBOX i=4:1 H2	A	B	C	GEARBOX i=6:1 H2	A	B	C
80	200	22	3	160	19	8	18	210	132	180	375	F07	G1 1/2	90	55	70	10	16	35	3.5											
100	220	24	3	180	19	8	20	240	140	190	475	F07		90	55	70	10	16	35	3.5											
125	250	26	3	210	19	8	22	275	140	200	425	F07		90	55	70	10	16	35	3.5											
150	285	26	3	240	23	8	22	320	156	210	466	F07		90	55	70	10	16	35	3.5											
200	340	26	3	295	23	8	26	440	214	250	561	F10		125	70	102	12	20	45	4											
250	405	28	3	355	23	12	26	490	214	270	724	F14		175	100	140	18	30	65	4											
300	445	28	4	400	23	12	28	490	224	270	724	F14		175	100	140	18	30	65	5	1037	102	268	34							
350	505	30	4	460	23	16	32	550	236	290	848	F14		175	100	140	18	30	65	5	1105	102	268	34							
400	565	32	4	515	28	16	32	620	264	310	920	F14		175	100	140	18	30	65	5	1275	102	268	34	1343	191	465	40				
450	615	32	4	565	28					330	990			175	100	140	18	30	65	5	1475	102	268	34	1543	191	465	40				
500	670	34	4	620	28	20	40	730	304	350	1090	F14		175	100	140	18	30	65	5	1698	102	268	34	1766	191	465	40				
600	780	36	5	725	31	20	40	840		390	1290	F14		210	130	165	22	40	80	6	1833	102	268	34	1901	191	465	40	1950	298	700	42.5
700	895	40	5	840	31	24	44	950		430	1513	F14		210	130	165	22	40	80	6	1995	102	268	34	2063	191	465	40	2112	298	700	42.5
800	1015	44	5	950	34	24	50	1080		470	1648	F16		210	130	165	22	40	80	6	2277	102	268	34	2345	191	465	40	2394	298	700	42.5
900	1115	46	5	1050	34	28	55	1190		510	1810	F16		210	130	165	22	40	80	6					2693	191	465	40	2742	298	700	42.5
1000	1230	50	5	1160	37	28	60	1300		550	2092	F16																			
1200	1455	56	5	1380	41	32	60	1680		630	2440	F16																			
1400	1675	PN6 44	5	1590	44	36	80	1880		710	2850	F25																			
1600	1915	48	5	1820	50	40	85	2160		790	3180	F30																			

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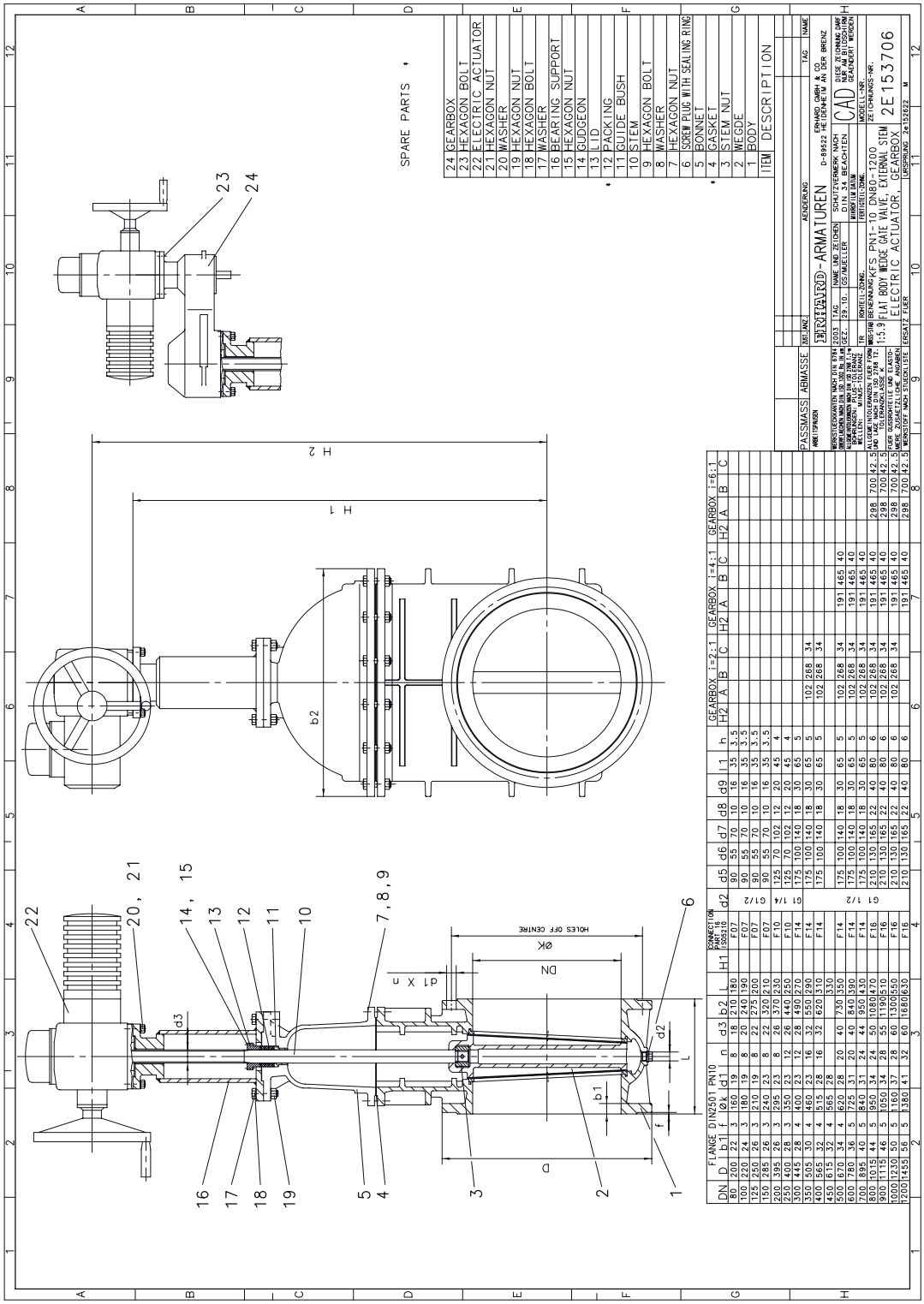
Drawing with spare parts list (2e153706)



DN	FLANGE DIN2501 PN10 D	b1	f	Øk	d1	n	d3	b2	L	H1	CONNECTION PART 10 ISO5210	d2	d5	d6	d7	d8	d9	l1	h	GEARBOX i=2:1 H2	A	B	C	GEARBOX i=4:1 H2	A	B	C	GEARBOX i=6:1 H2	A	B	C
80	200	24	3	160	19	8	28	240	190		F07		90	55	70	10	16	35	3.5												
100	220	24	3	180	19	8	28	240	190		F07		90	55	70	10	16	35	3.5												
125	250	26	3	210	19	8	22	275	200		F07		90	55	70	10	16	35	3.5												
150	285	26	3	240	23	8	22	320	210		F07		90	55	70	10	16	35	3.5												
200	395	26	3	295	23	8	26	370	230		F10	G1/2	125	70	102	12	20	45	4												
250	400	28	3	350	23	12	26	440	250		F10	G1 1/4	125	70	102	12	20	45	4												
300	445	28	4	400	23	12	28	490	270		F14		175	100	140	18	30	65	5	102	268	34		191	465	40		298	700	42.5	
350	505	30	4	460	23	16	32	550	290		F14		175	100	140	18	30	65	5	102	268	34		191	465	40		298	700	42.5	
400	565	32	4	515	28	16	32	620	310		F14		175	100	140	18	30	65	5	102	268	34		191	465	40		298	700	42.5	
450	615	32	4	565	28	20	40	730	350		F14		175	100	140	18	30	65	5	102	268	34		191	465	40		298	700	42.5	
500	670	34	4	620	28	20	40	730	350		F14		175	100	140	18	30	65	5	102	268	34		191	465	40		298	700	42.5	
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800	1015	44	5	950	34	24	50	1080	470		F16		210	130	165	22	40	80	6	102	268	34		191	465	40		298	700	42.5	
900	1115	46	5	1050	34	28	55	1190	510		F16		210	130	165	22	40	80	6	102	268	34		191	465	40		298	700	42.5	
1000	1230	50	5	1160	37	28	60	1300	550		F16		210	130	165	22	40	80	6	102	268	34		191	465	40		298	700	42.5	
1200	1455	56	5	1380	41	32	60	1680	630		F16		210	130	165	22	40	80	6	102	268	34		191	465	40		298	700	42.5	

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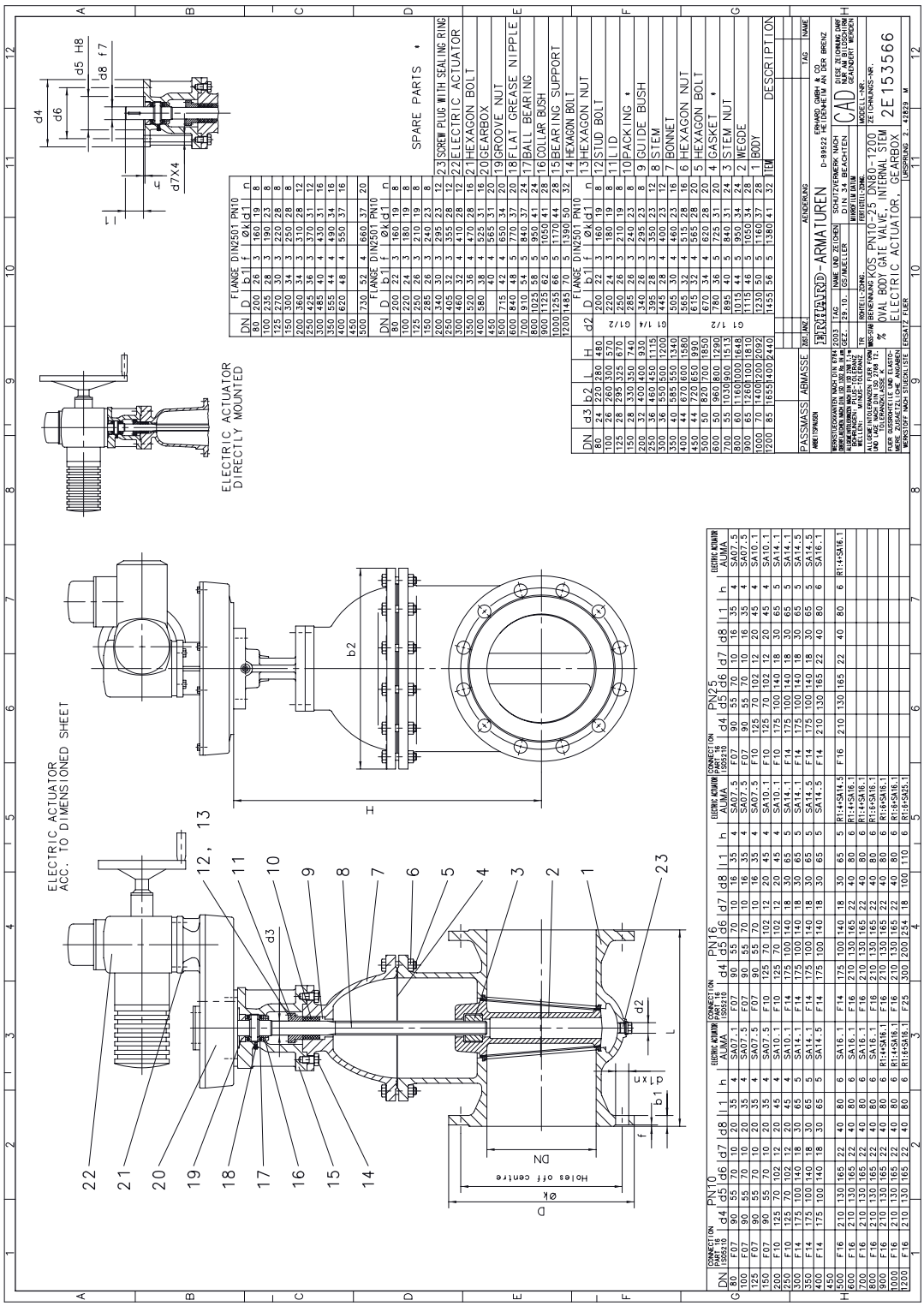

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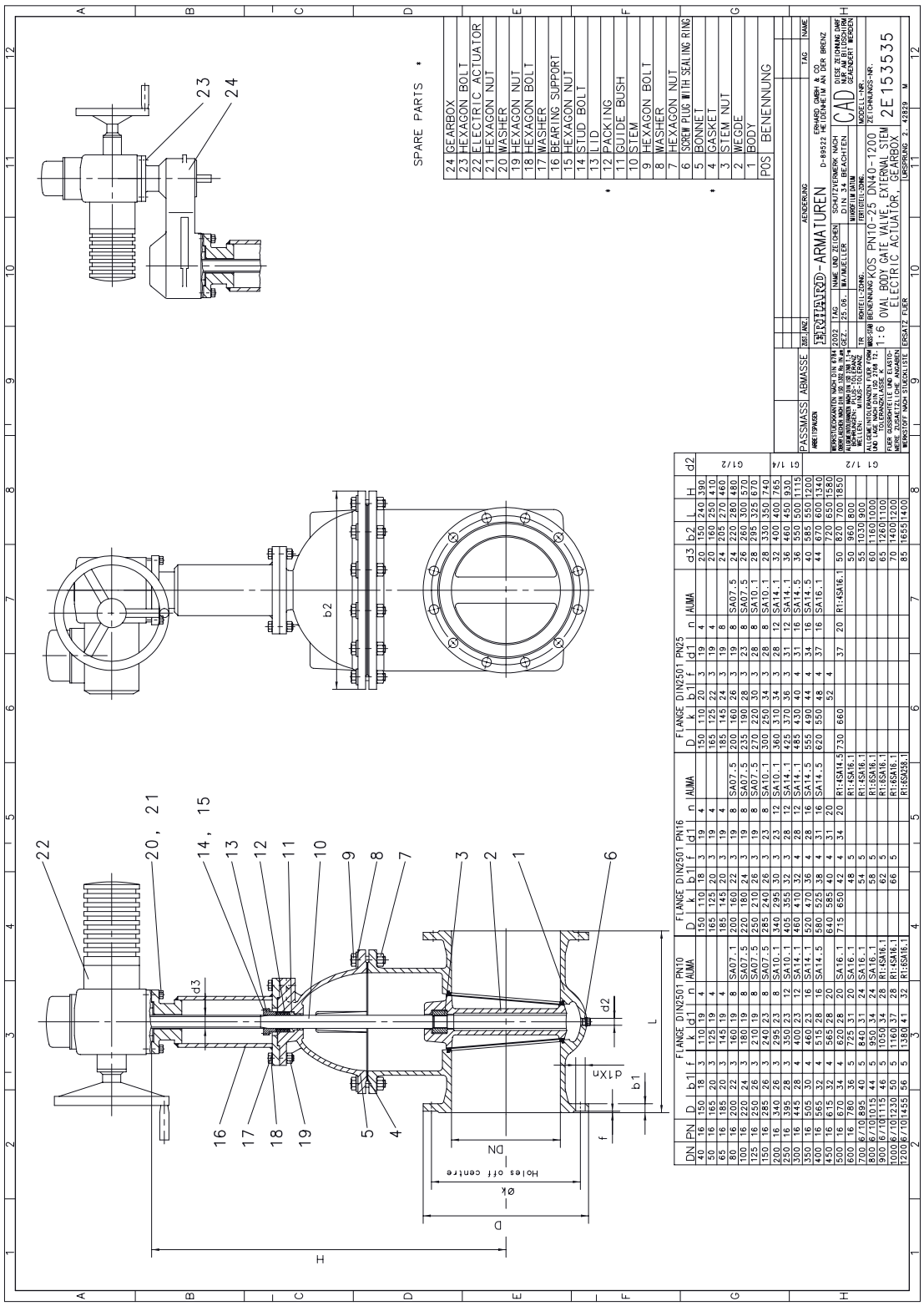

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