

Single seated valve**101-L1**

DN 150 PN 16

Design acc. to AD 2000-Regelwerk/DIN3840

Valve design	9 bar, 60°C
Medium	Nitrogen
KVS	160 lin
Order-No.	45220297
Comm.-No.	572 3 7318
Project	KOSICE
Serial-No.	TAG-Identification
1015086+1015087	FV 2946 / Ident 6970 301464
ARCA Order-No.	2507573-KE
Item-No.	101
Drawing-No.	257538

1 Konformitätserklärung/ Declaration of Conformity	3
2 Description of function	4
3 Warning symbols	4
4 Safety Instructions	5
4.1 Qualified Personnel	5
5 Mounting site	6
6 Mounting	6
7 Actuator Mounting	6
8 Before first starting-up	6
9 Starting up	7
10 Maintenance	7
10.1 Servicing	7
10.2 Maintenance	7
10.3 Stuffing box package	7
11 Dismantling and remounting the valve	7
11.1 How to proceed	8
11.2 Actuator	8
11.3 Top flange	8
11.4 Stuffing box packing	8
11.5 Slide bearing	8
11.6 Valve plug	8
11.7 Spindle	9
11.8 Valve seat	9
12 Sectional Drawing No.257538	10
13 Parts List	11
14 Table(s) of torque moments	11
14.1 Screw connections, general	12
Fig. 1 -Stuffing box package- Detail X	7
Fig. 2 -Mounting of plug and spindle	9

1 Konformitätserklärung/ Declaration of Conformity

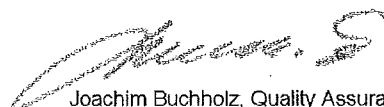
Konformitätserklärung/ Declaration of Conformity gemäß Richtlinie/acc. to directive 97/23 EG

und Herstellererklärung/ and Declaration of Manufacturer nach Richtlinie/ acc. to directive 98/37 EG



Die/ The	ARCA Regler GmbH, D-47918 Tönisvorst		
erklärt, dass die Produkte/ declares that the products	• Regelventile / Control Valves Globe Type • Schaltventile / On/off Valves • Dreiwegeventile / 3-Way Valves • mit freiem Spindelende (ohne Antrieb) / with free stem end (without actuator) • mit Membran-/Elektroantrieb / with Diaphragm/ Electric Actuators		
ARCA Auftrags-Nr./Order No.	2507573-KE	Serial Nr./ No.	1015086+1015087
1. drucktragende Ausrüstungsteile im Sinne der EG-Druckgeräte-Richtlinie 97/23 EG und mit den Anforderungen dieser Richtlinie konform sind are pressure containing equipment as per PED 97/23 EG and meet all requirements of this directive 2. nicht vollständige Maschinen im Sinne der EG-Maschinenrichtlinie 98/37 EG sind, aber zutreffende Anforderungen dieser Richtlinie erfüllen are no self-operating machines as per Machinery Directive 98/37 EG but meet all requirements referring to this directive 3. nur unter Beachtung der Betriebsanleitung für die entsprechende Serial-Nummer betrieben werden dürfen are only allowed for operation by observing the operating instructions for the respective serial No. Die Inbetriebnahme dieser Armaturen ist erst zugelassen, wenn die Armatur beidseits an die Rohrleitung angeschlossen und eine Verletzungsgefahr damit ausgeschlossen ist. The start of operation is only permitted, when the valve is connected to the pipework on both sides and danger of injuries is excepted.			
Angewendete Normen/ Applied standards:			
AD 2000 Regelwerk	Vorschriften für druckführende Gehäuseteile / Directive for pressure containing body parts		
DIN EN 292-2000	Sicherheit von Maschinen, Teil 2: Technische Anforderungen/ Safety of Machines, Part 2: Technical requirements		
Typbeschreibung und technische Merkmale/ Description of type and technical characteristics:			
Baureihe/Series 8C, 6N, 6H, 100, 110, 120, 130, 140, 160, 170, 180, 200, 220, 230, 250, 280, 340, 350, 380, 391-813, 400, 410, 430, 440, 510, 520, 540, 550, 560, 570, 580, 811, 812, 813, 830, 840 und Betriebsanleitungen für entsprechende Serial-Nummern / and operating instructions for respective serial No. ANMERKUNG: Diese Herstellererklärung gilt für alle Typenvarianten der genannten Baureihen REMARK: This Declaration of Manufacturer is valid for all versions of the mentioned series			
Angewendetes Konformitätsbewertungsverfahren/ Applied conformity assessment procedure:			
nach Anhang II der Druckgeräte-Richtlinie 97/23 EG, Modul "H" / as per annex II of PED 97/23 EG, module "H"			
Benannte Stelle/ Notified Body:		Kenn-Nr./ Identification No.:	
Germanischer Lloyd Certification GmbH D-20416 Hamburg		0098	
Änderungen an Stellventilen und/oder Baugruppen, die Auswirkungen auf die technischen Daten des Stellventils, auf die <Bestimmungsgemäße Verwendung> gemäß Abschnitt 1 der Betriebsanleitung haben und die Armatur oder eine mitgelieferte Baugruppe wesentlich verändern, machen diese Erklärung ungültig. In case of modifications on valves and/or assembled parts, that effect on the technical data of valves and <use as directed> acc. to paragraph 1 of operating instruction and alter the valve or assembled part in essence, this declaration becomes invalid.			

Tönisvorst, 11.05.2004



Joachim Buchholz, Quality Assurance Manager

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2 Description of function

Valves of this type are normally applied as control valves according to DIN 19226.

They reduce the pressure of a mass-flow by means of the valve plug.

The special feature of the valve is

- a perforated plug which, in combination with the seat
- is of single-stage execution
- The flow characteristics are determined by the hole pattern of the plug
- metallic seal between valve plug and seat
 - At the stroke position 0% the plug is pressed with its tapered edge against the edge of the seat bore and closes the valve.
- sliced stuffing box packing rings
 - adjustable

3 Warning symbols

Safety informations and warnings are intended to avert danger from the life and health of users and maintenance personnel and to prevent material damage. They are highlighted in this manual by the headings defined here. They are also marked by warning symbols next to where they appear. The headings used have the following meaning for the purposes of this manual and the product labels.

Danger



indicates that death, severe personal injury or substantial property damage will result if proper precautions are not taken.

Warning



indicates that death, severe personal injury or substantial property damage will result if proper precautions are not taken.

Caution



indicates that minor personal injury or property damage can result if proper precautions are not taken.

Note



indicates an important information about the product itself or the respective part of the instruction manual which is essential to highlight.

4 Safety Instructions

Warning



The valve is to be used exclusively for the application according to our order confirmation. Any other application is considered as not conforming and the user is fully responsible for any damage that may result from this.

Unauthorized modifications or the use of spare parts other than original ARCA parts exclude our liability for damages that may result from this. In this case, the user is bearing the full responsibility.

Maintenance and repair of the actuator must be carried out only by qualified personnel, and it is important to follow the corresponding rules and regulations for pressure vessels and steam boilers.

The actuators produce high positioning forces. Mounting and starting up must be carried out under careful consideration of the safety instructions.

Special reference is made to strictly follow the rules and regulations for plants with explosion hazards.

Before starting any maintenance works, it is important to ensure and well note the following:

- Drainage of the pipeline
- Get complete information on the possible dangers, which can occur through remainders of the flow medium and take suitable measures (safety gloves, safety glasses, etc.).
- Let the valve cool down, if required.
- Make sure that no third person can put the plant into operation.
- Remove any pressure, which might build up in a shut-off pipeline.

4.1 Qualified Personnel

Warning



in the sense of the operating instructions are persons who are familiar with the mounting, starting up, and operation of this product and who have the corresponding qualification for such works, e.g.

- Education or training according to the actual safety standards for maintenance and use of adequate safety equipment.
- First aid training
- For plants with explosion hazards: Special training or instructions, or the authorisation respectively to carry out works in plants with explosive hazards.

5 Mounting site

- The valve should be accessible at least from one side.
If mounted at an elevated level, a service gangway, or similar, should be provided.
- For valve sizes DN 100 or larger, an electric crane or tackle should be available.

6 Mounting

The valve is provided with flange connections and will be screwed into the pipeline after removing protective caps from the inlet and outlet sealing surfaces (flanges) by using the gaskets provided at site.

The following should be noted:

Caution



- Mounting position: Pipeline horizontal,
Spindle vertical;
Actuator above valve

For other mounting positions special provisions must be made to support the weight of the actuator.

- The valve must not be exposed to stress-loads of the pipeline.
- On the upstream- and downstream sides of the valve, the pipe should have a straight length of at least 10 x nominal diameter. Other armatures or branches are not allowed.
- A bypass-line with shut-off valves on the upstream- and downstream sides of the valve is recommended.

7 Actuator Mounting

Actuators of different types can be simply and easily mounted on each valve. This is achieved through the selection of standard parts for mounting and coupling purposes.

Caution



- If an electric actuator is used then the following information should be noted.
 - When the valve moves to its closed position, the supply to the motor is disconnected by a torque limit switch.
 - When the valve moves to its open position, the supply to the motor is disconnected by a travel limit switch.

8 Before first starting-up

Pickling and rinsing

The following procedures are recommended:

(1) The trim is removed from the valve body before the pickling and rinsing process.

- Dismantle the trim completely so that only the valve body will remain in the pipeline
- Install rinsing kit in place of the valve seat (to be ordered separately)
- Mount rinsing flange(s) (to be ordered separately)
- Pickling and rinsing
- Clean valve body, remove rinsing kit
- Replace gaskets
- Remount trim in the valve body

(2) In place of the valve a spacer is fitted.

- Remove valve from pipeline (in case of flanged valves)
- Mount spacer into the pipeline
- Pickling and rinsing
- Remove spacer from pipeline
- Replace gaskets and packings
- Remount valve into the pipeline

9 Starting up

Warning

Follow instructions under section Safety Instructions on page 5.



Caution



- Avoid thermal shocks!
 - Bring valve slowly to operating temperature
- From temperature differences of approximately 300 K the temperature change velocity of max. 2 K/min has to be kept**
- Check tightness of the flange connections
- Setting of gaskets: see also under DIN 2505 / 4.5
 - Tighten screw connections crosswise. (Table(s) of torque moments See page 12)
- Check tightness of stuffing box packing
 - tighten stuffing box screw (152)
 - avoid excessive force → deteriorated control quality

10 Maintenance

10.1 Servicing

Warning



- Clean spindle (50) regularly
 - Move actuator in its upper end position and secure it.
 - Clean spindle (50) with a soft cloth, but **never use grinding paper**.

10.2 Maintenance

The valve is mainly maintenance-free.

After a longer period of operation or under very changing operating conditions, the valve should be serviced according to section **Starting up** on page 7

10.3 Stuffing box package

The complete stuffing box set is interchangeable if leakage occurs.

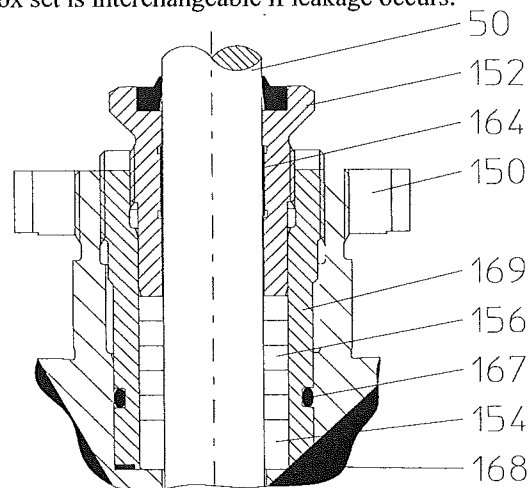


Fig. 1 -Stuffing box package- Detail X

11 Dismantling and remounting the valve

Warning

Follow instructions under section Safety Instructions on page 5



11.1 How to proceed

- Dismantling the valve
 - Dismantled parts have to be secured thoroughly against falling down (risk of injury or damage).
- Cleaning of all components.
- Remounting in the reverse order
 - by using the new parts.
 - Replacement of gaskets and packings.
 - insert - if provided - dynamically loaded O-rings and form-rings with O-ring grease, unless process conditions do not allow its use.
 - dynamically loaded gaskets of pure graphite -if provided -are greased with a thin layer of „Joudol-Grease“ (product of Messr. Burgmann) unless process conditions do not allow its use.
- Pay attention to torque moments for screw connections. See under section **Table(s) of torque moments** on page 12
- After mounting, the plug is to be moved into its upper and lower end positions by means of the actuator or manually. It must be made sure during this procedure that the plug should neither jerk nor scrape. If required, loosen the flange connections, centre the flange position and re-tighten the flange screws.
- Take the valve into operation according to section **Starting up** on page 12
- When ordering spare parts, please copy and complete form at the end of the operating instructions and send or fax it to the a.m. address.

11.2 Actuator

Warning



- **Move actuator in a medium position and secure it.**
- Disconnect actuator and take it off
 - Follow mounting instructions of the manufacturer of the actuator!

11.3 Top flange

Caution



- Unscrew stuffing box screw (152)
 - See also under **Fig. 1** on page 7
- Loosen screw-connection between body (1) and top flange (2).
- Take-off top flange (2).
 - The plug (26) is eventually taken off together with the top flange (2).
 - Pull plug (26) out of the top flange (2).
- **Attention ! Do not bend the spindle (50)!**

11.4 Stuffing box packing

- Remove packing set (156) and bottom ring (154).
 - See also under **Fig. 1** on page 7

11.5 Slide bearing

Note



- take the slide bearing (164) from the stuffing box screw (152).
At the mounting of the slide bearing (164) you have to consider:
 - turn the coated side towards the spindle (50)
 - turn the tissue side towards the stuffing box screw (152)

11.6 Valve plug

Depending on the valve type, the plug (26) has already been dismantled. Otherwise

- Pull plug (26) with spindle (50) out of the body (1).

11.7 Spindle

The spindle (50) is interchangeable.

- Beat out the border of hex. nut (57)
- Unscrew and replace hex. nut (57)
- Pull spindle (50) out of the plug (26)

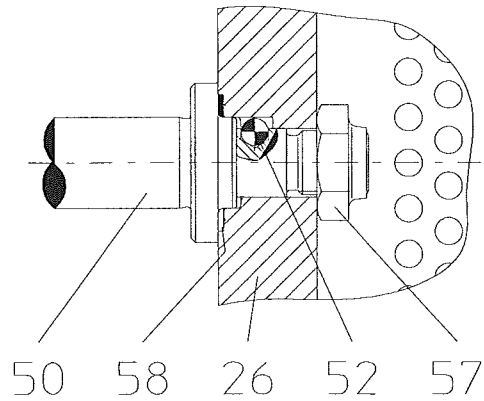


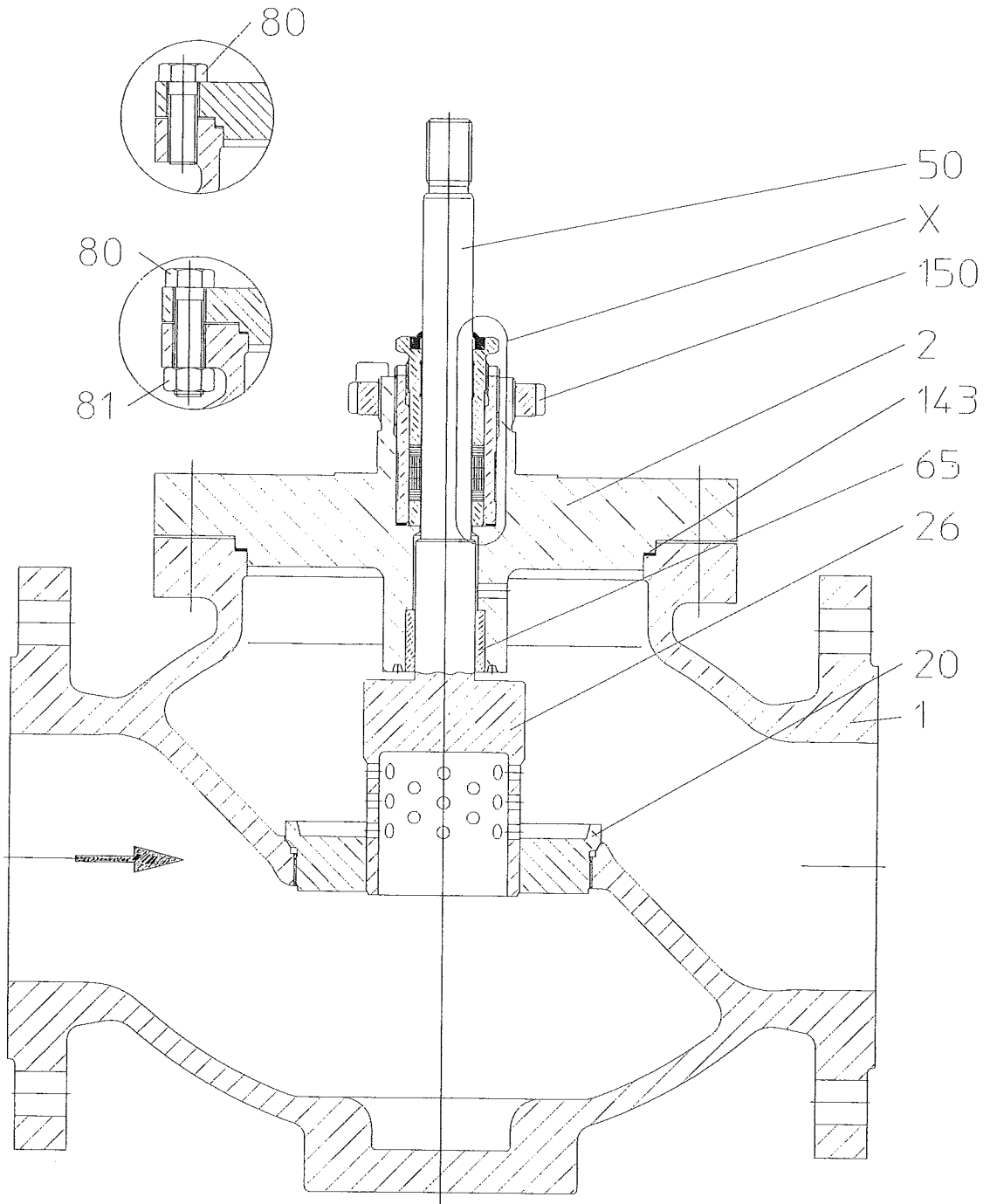
Fig. 2 -Mounting of plug and spindle

Picture shows example with perforated plug

11.8 Valve seat

- Unscrew valve seat (20)
 - Seat-spanner is **not** part of scope of supply!
 - If necessary, use hammering spanner

12 Sectional Drawing No.257538



13 Parts List

Recommended spare parts are marked with an asterisk (*)

Item No.	Part Name
1	valve body
2	top flange
20 *	seat
26 *	valve plug (complete)
50 *	spindle
52 *	steel ball
57 *	hex. nut
58 *	gasket
65	guide bushing
80 *	screw bolt
81 *	nut
143 *	gasket
150	slotted nut
152	stuffing box screw
154 *	bottom ring
156 *	packing set
164 *	slide bearing
167 *	o-ring
168 *	gasket
169	sleeve

14 Table(s) of torque moments

14.1 Screw connections, general

Screws acc. to DIN933/931/939

Thread Size	Torque Moment [Nm]
M10	16
M12	30
M16	70
M20	100
M24	180
M27	330

Spare parts quotation / Order

To: ARCA-Regler GmbH
P.O. Box 2120
D-47913 Tönisvorst
Tel.: 0 21 56 / 77 09-0
Fax.: 0 21 56 / 77 09 55
eMail: sale@arca-valve.com

From:

We refer to the Serial-number(s) _____

- ☐ We would like to have your quotation for the following spare parts:
☐ We herewith order the following spare parts:

Item No.	Part Name	quantity
20	seat	
26	valve plug (complete)	
50	spindle	
52	steel ball	
57	hex. nut	
58	gasket	
80	screw bolt	
81	nut	
143	gasket	
154	bottom ring	
156	packing set	
164	slide bearing	
167	o-ring	
168	gasket	

Date / Signature

Key-No.: 10-1H-AA-AAA-0AA-0A-WM-A1

Printed: 06.06.2005

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Page 13 of 13

