NelesAce™

Basis weight control unit

Installation, maintenance and operating instructions

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READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact the manufacturer or manufacturer's representative.

SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

INTERNET ADDRESS OF REQUIRED PROGRAM

https://www.valmet.com/flowcontrol/valves/valve-software/ or scan QR code.

1. GENERAL

1.1 General view

Neles™ NelesAce™ basis weight control system comprises a V-port segment valve, an actuator and a control unit.

The valve is a standard R-series V-port segment valve.

A stepping motor is used in the actuator to reach the best possible degree of regulation. The actuator is equipped with both open and close position limit switches and with a position transmitter.

The process control system transmits a digital signal to the control unit which in turn automatically controls the actuator. Manual operation is also possible.

1.2 Operating principle of the control unit

The step motor controller is in command of the four-wire connected step motor in the valve actuator. The controller's protection class is IP65. Input signals are transmitted to the controller through six digital input channels. Alternatives are pulse duration interface or time duration interface. There are also optional input channels (Option 1 and Option 2). When option inputs are in use, it is possible to change the step size and time duration frequencies remotely. The process control system (DCS) transmits a pulse mode. The pulse mode then drives the step motor to either the open or close directions depending on the channel which DCS is using (open or close). The movement stops if the pulses end or the actuator reaches the limit switch. In time duration mode the step motor starts to move from the pulse leading edge and stops from the pulse trailing edge or when the actuator reaches the limit switch. The opening angle of the actuator is 0 to 90º. The default factory value for the step setting is 1/2 step per pulse where 14100 pulses equals to 90 degree movement. The accuracy of regulation can be changed. In this case the step setting must be changed by programming it to 1/1 step (7050 pulses). The control unit is also equipped with inputs for two limit switch signals and feedback potentiometer signal.

RS232/485 interface compatible IPCOMM software is delivered with the control unit. This software allows parameter changes to the control unit.

1.3 Markings

The valve controller is equipped with an identification plate sticker, see Fig. 2. Identification plate markings from top to bottom are:

- Type code of the actuator and control unit
- Nominal voltage
- Nominal current
- Supply voltage frequency
- Protection class
- Manufacturer number
- Serial number
- Gear ID
- Control unit ID
- Step motor ID
- Max. step motor current
- Ambient temperature

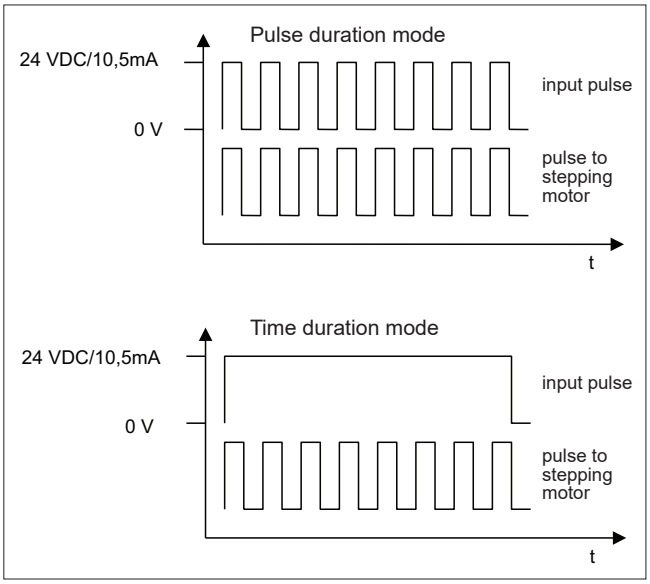


Fig. 1 Pulse and time duration modes

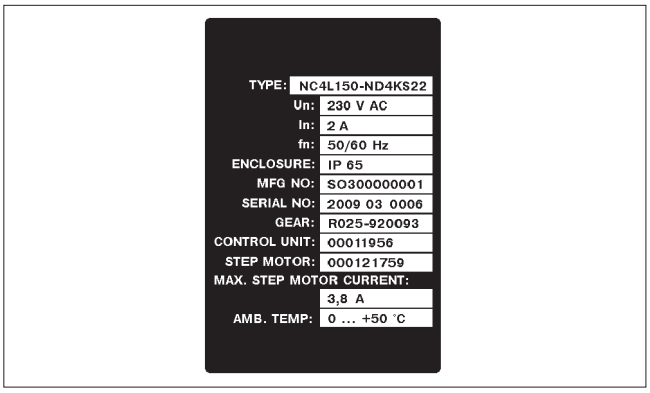


Fig. 2 Example of the identification label

1.4 Technical specifications

Valve

See Installation, Maintenance and Operating instructions 3R74en for valve installation instructions.

Recommendation: Installation of the valve: 7 x DN downstream side and 10 x DN upstream side distance of the piping curve. Installing the valve into pipeline. See figure 3.

Actuator

Stepping motor:

Motor type	ZSH87/3.200.5
Number of steps	200
Step angle	1.8° in full step mode
Compatible with ministep-mode	
Protection class	IP68
Insulation class	F
EMC and CE approved (EN 60034-1)	

Gear:

Gear ratio	1:141

Limit switches:

Contacts	normally closed (NC)

Position transmitter:

Output signal	4–20 mA
External load	1 kΩ

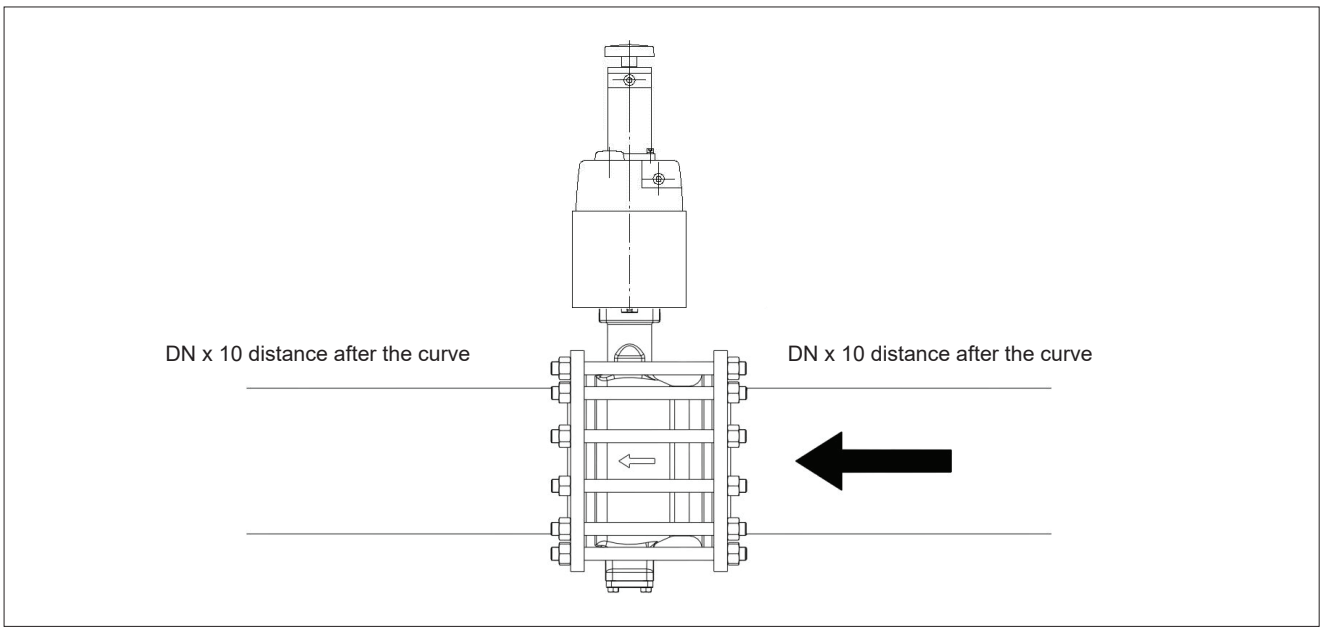
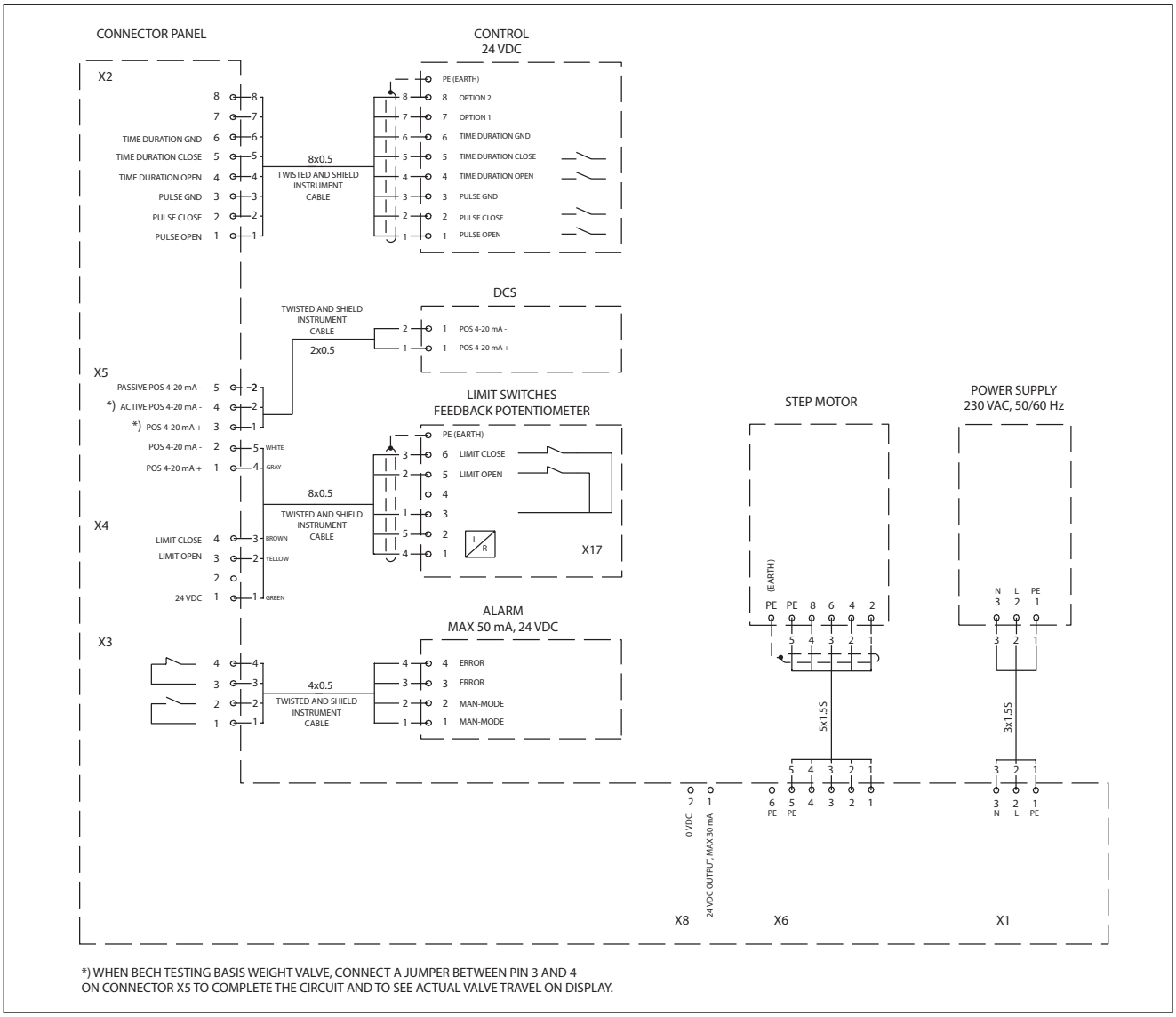


Fig. 3 Installing the valve into pipeline



*) WHEN BECH TESTING BASIS WEIGHT VALVE, CONNECT A JUMPER BETWEEN PIN 3 AND 4 ON CONNECTOR X5 TO COMPLETE THE CIRCUIT AND TO SEE ACTUAL VALVE TRAVEL ON DISPLAY.

Fig. 4 Connection diagram

Control unit

Step motor controller type	GSP 92-70
Nominal power	200 W max. motor power
Un	230 V AC (option 110 V AC)
In	2 A, fuse T 2.5 A (110 V: 4.2 A, fuse T 5 A)
Output power	max. 9 A, when 70 V input to motor In 6.3 A
Steps	1/1 step 7050 pulses 0–90° 1/2 step 14100 pulses 0–90° 1/4 step 28200 pulses 0–90°
Factory settings	1/2 step, 14100 pulses / 0–90° local control mode 200 Hz time duration mode 150 Hz
Operational temp.	0°...50 °C storage and transportation -20°...+60 °C
Protection class	IP65
I/O	alarm contact, opening contact 24 V DC, max. 50 mA manual operation, closing contact 24 V DC, max. 50 mA
Control signals	pulse, time duration and option inputs: 24 V DC / 10 mA optocoupled

1.5 Recycling and disposal

Most control system parts can be recycled if sorted according to material. Most parts have material marking. A material list is supplied with the system. In addition, separate recycling and disposal instructions are available from the manufacturer. A control system can also be returned to the manufacturer for recycling and disposal against a fee.

1.6 Safety precautions

CAUTION:
Follow all marked cautions in Installation, maintenance and operating instructions when handling the valve.

CAUTION:
Do not exceed the permitted values!
Exceeding the permitted values marked on the control unit may cause damage to the control unit and to the equipment attached to it. Damage to the equipment and personal injury may result.

CAUTION:
Finger covers (170) must be on during operation!
Finger covers may only be removed from the bracket during maintenance and when power is switched off.

CAUTION:
The hand wheel (108) handle of actuator must be bent during operation.
The handle can only be used when power is switched off.

NOTE:
Only authorized persons are permitted to carry out the electrical connections for the device.

2. MOUNTING

2.1 Valve mounting

NOTE:
Install the valve with shaft in upright position.
Consult factory for other positions.

See Installation, Maintenance and Operating Instructions 3R74en for valve installation instructions.

2.2 Actuator mounting

Actuator is mounted to valve at the factory.

The actuator is mounted to the valve with either two or four bolts. Actuator is connected to the valve shaft with a backlash-free joint.

2.3 Control unit mounting

General

- Dimensions for control unit are: length 400 mm, width 355 mm and height 150 mm.
- The cable between the control unit and the actuator may be up to 120 m.
- The control unit may not be installed above a radiant.
- Operating ambient temperature range of control unit is 0° to 50 °C.
- Heat sink (215) must have enough space to ensure cooling.
- Control unit must not be mounted on a vibrating base.
- Mount control unit on an even base using the attachment points of the control unit box.

Control unit connections

ELECTRICAL SAFETY NOTE:
The control unit does not have a main switch. The electrical installation must provide a main switch or a circuit breaker.

Control unit receives maximum of six cables, one or three from the control system, two from the actuator and one supply voltage cable. They are connected to the connector card of controller according to Fig. 4. The cable shields should be connected to the lead-ins to avoid any interference. Leading the cable from the DCS through a ferrite is recommended.

The internal connections of the control unit between the step motor controller, display card and connector card are made using cables with connectors. All cables must be connected to ensure the proper operation of the controller. Connector card, Fig. 5, connectors X1... X12, and step motor controller, Fig. 6, connectors X1...X6, are connected as follows:

Connector card		Step motor controller
X7	—	X1
X9	—	X5
X10	—	X2
X11	—	X6
X12	—	display card

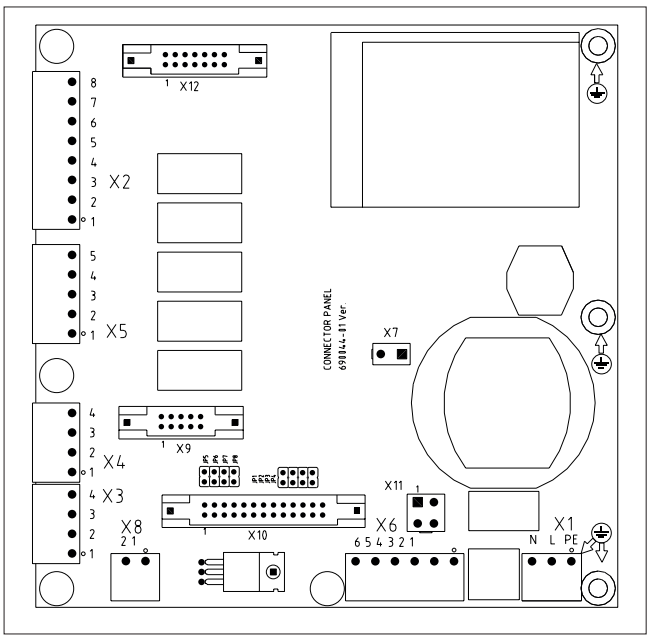


Fig. 5 Connector card

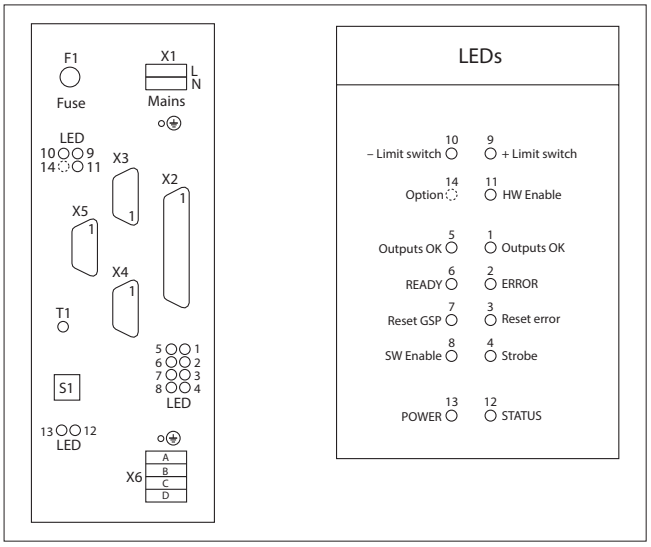


Fig. 6 Connectors and LEDs for step motor controller

Error signal connections

Error signal is available at connector X3, pins 3 and 4.

The following errors are indicated:

- no supply voltage to limit switches.
- overheating of controller, >85 °C.
- shot circuit in motor winding.
- blow out of controller fuse.

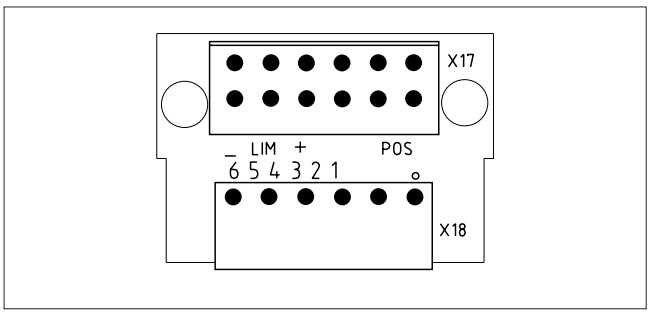


Fig. 7 Connector cover

Cable connections for actuator

Two cables are connected to the actuator. The first is connected to the connector cover of actuator which has the connections of the limit switch and the feedback potentiometer, Fig. 7. The second cable is connected to the step motor, Fig. 8. The cables are connected as shown in Fig. 4.

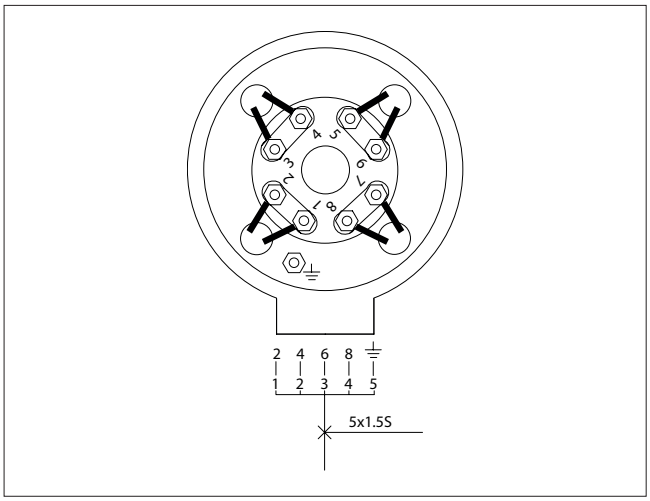


Fig. 8 Connection for step motor

3. COMMISSIONING

Check the following proceedings at commissioning:

- Check connections.
- Check grounding.
- Connect power supply.
- Check that LED 11 is lit (HW Enable), see Fig. 6.
- Move valve to open and close limits in manual mode. Check functioning of limit switches and position display.
- Connect control unit to automatic mode and check that the valve is also operable with the signal from control system.

NOTE:
When replacing the existing basis weight valve with NelesAce it is recommended to you verify and, if necessary, tune DCS parameters.

NOTE:
It is recommended that the valve position signal is used only for informative purposes and feedback for control is taken from other measures, e.g. flow.

4. MODIFYING THE PARAMETERS

IPCOMM program is a setup program for the controller. With the program the user can change every necessary parameter. Every controller is programmed with factory settings before sending to customer. The customer can modify the settings in accordance with the processes that they use. This chapter will concern only basics of the program. Use the online help (F1-button) file to get more information.

4.1 Hardware requirements to use IPCOMM

To use IPCOMM on your PC the following requirements should be fulfilled:

- Any modern PC with Windows® operation system.
- A free serial port (COM), or a suitable USB to serial port adapter (consult factory for suitability).

NOTE:
Most of the IPCOMM functions can also be started by using a keyboard input, but not all of them. Therefore, a mouse is necessary.

NOTE:
IPCOMM can only be used, if a controller is connected to your PC.

4.2 Getting started

When the customer has to modify parameters it is possible to do this with the PC and RS232 serial link cable (a laptop computer is recommended).

NOTE:
Internet address of required program:
valveproducts.neles.com/catalog/1249/nelesACE_ENG1.html

- Install the IPCOMM program to your PC.
- Connect the serial link cable to controller (connector X4) Fig. 6.
- Supply voltage for controller must be switched on.
- Start the IPCOMM program.
- In login window (Fig. 9) set the interface and baud-rate (COM1, 28800 Baud)
- Choose *Axis* 0.
- Push the Ø button from the toolbar.
- Now connection between the PC and the controller should be active.

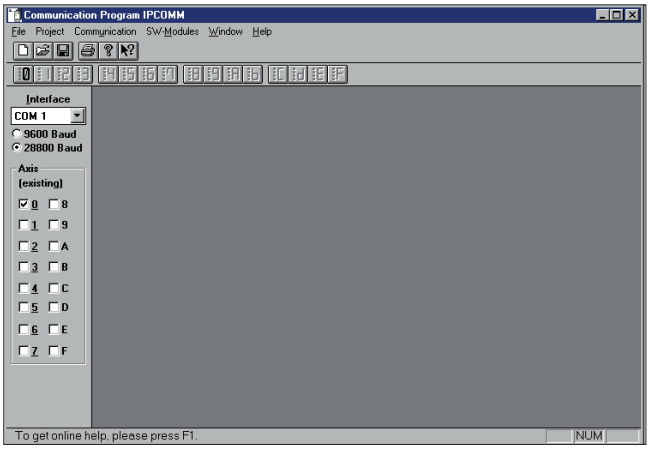


Fig. 9 Login window

4.3 Basic functions

Once a connection has been established between the computer and the controller, the user can carry out the configuration. The basic window (Fig. 10) includes several functions and information.

There are a few things that the user should check **before** any modifications are carried out.

- Check the general parameters. The *OP-Mode* must be *PLC-Mode*.
- The *Type of Axis* must be *Linear.*

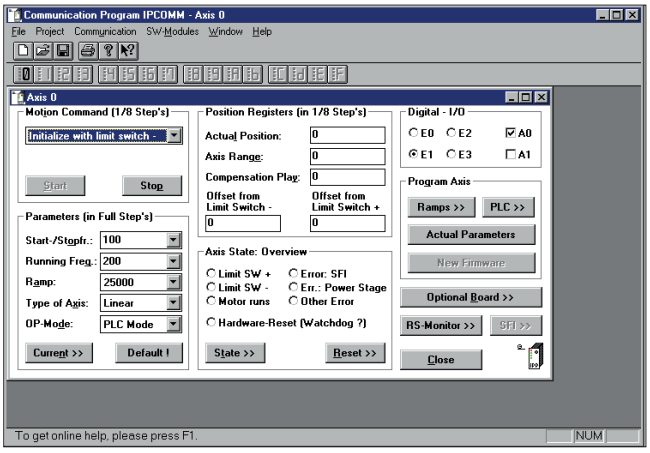


Fig. 10 Basic window

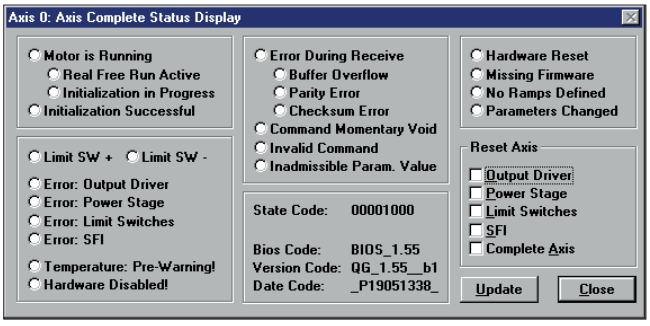


Fig. 11 Status window

- *Offset from Limit Switch* must be 0
- Check the possible errors before modifying the PLC commands
- Errors, program version and other information are indicated in *Status* window, Fig. 11.
- If any errors appear, reset those in reset windows before changing the PLC parameters.

4.4 Limitation of the motor current

Current settings are preset in the factory in accordance with the valve size. Settings can be modified in *Current Selection* window, Fig.12. In normal conditions there is no need to modify these settings, but in case the customer changes the actuator size and keep the same controller the settings can be modified.

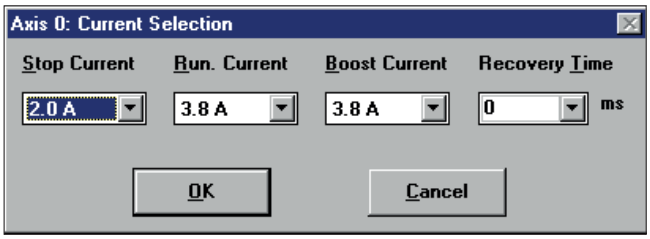


Fig. 12 Current selection window

NOTE:
Do not exceed the current setting of corresponding valve size, Table 1.
Overload current may damage the valve shaft.

Use IPCOMM software for motor current setting.

Table 1 Motor current limiting for different valve sizes

Valve	Stop current (A)	Run current (A)	Boost current (A)
DN 50-65	0.8	1.2	1.2
DN 80-100	1.2	1.5	1.5
DN 150	2.0	3.8	3.8
DN 200	2.0	3.8	3.8
DN 250	2.4	4.6	4.6
DN 300	2.8	5.1	5.1
DN 350	2.8	5.1	5.1
DN 400	2.8	5.1	5.1
DN 500	2.8	5.1	5.1

Remember to push *Actual Parameters* button after current value changes, otherwise changes will not be valid!

4.5 Option inputs and PLC commands

NOTE:
If error condition is on, while PLC commands are modified all PLC parameters will be erased!

NOTE:
Don't change ramp parameters!

The Option inputs and PLC commands are preset in the factory. The settings can be modified to meet the process requirements, for instance changing the time duration speeds. Changes can be carried out in the *PLC-code* window, Fig. 13 and Fig. 14. With the NelesAce delivery there is parameter list which includes program listing. The user may also print the parameter list in start window by pressing the printer button in the toolbar.

Factory settings and option input functions are indicated in Table 2. When option inputs are in use, it's possible to change the step size and time duration frequencies via DCS. The customer can make the control logarithmic instead of a linear control. The advantage of logarithmic control is that controlling grade changes is much faster and more accurate. Parameter changes can be done in following way:

- Check the possible errors before modifying the PLC commands.
- Push *PLC>>* button to open *PLC-code* window.
- Select parameter which you want to change.
  To continue, follow instructions in Sections 4.5.1, 4.5.2 and 4.5.3.

Table 2 Factory settings and option inputs

Pulse duration				
Option input 1	0 V DC	24 V DC	0 V DC	24 V DC
Option input 2	0 V DC	0 V DC	24 V DC	24 V DC
Step size	1/2 step	1/1 step	2/1 step	1/4 step
max. step input frequency 400 Hz except 2/1-step 200 Hz				
Time duration				
Option input 1	0 V DC	24 V DC	0 V DC	24 V DC
Option input 2	0 V DC	0 V DC	24 V DC	24 V DC
Time duration speed	150 Hz	300 Hz	600 Hz	1200 Hz
min. time duration frequency is 50 Hz and max. 2 kHz				

The following is a description of the application of NelesAce for the control system (DCS) vendor as the best available method to control basis weight through use of the features included in NelesAce.

The control method depends on the capabilities of the control system (DCS). In addition to the normal binary drive open, drive closed output card a pulse train output card is also needed to provide pulses to open and close the valve in discrete steps.

In normal automatic mode the DCS uses pulses to control NelesAce position. In this case DCS must have an appropriate pulse output card which can send pulses at the correct frequency (recommended time 25 ms per pulse). One pulse from the control system (DCS) moves the NelesAce by one pulse. Each pulse can equal 1/4 step, 1/2 step, 1 step, or 2 steps depending on which option or options are energized and **how the NelesAce is programmed**, see table 2.

Normal movement is 1/2 step per pulse. Connection 7 (see Fig. 4, Control 24 V DC) energized gives 1 step per pulse (= option 1). Correspondingly connection 8 energized gives 2 steps per pulse (= option 2). Both connections 7 and 8 energized gives 1/4 step per pulse (= option 1&2).

When using 1/4 step mode the valve takes 28200 pulses for full 0–100 % stroke, correspondingly 1/2 step takes 14100 pulses etc. Flow is controlled depending on the error between actual and desired flow rate. The decision for step size is made based on the magnitude of the error.

Changing pulse duration mode settings

NOTE:
In pulse duration command lines (move relative), don't change the Offset and Run frequencies!

- To change the step size, scroll the command (*Prog.*) line selection slider to 0 (or up to 3, see Table 3).
- Set the new value, step size is indicated in 1/8 steps, so 4 is same as 1/2-step.
- Push *Program it!* button, that saves the new settings.
- Close *PLC-code* window.
- Now pulse duration mode change is finished.

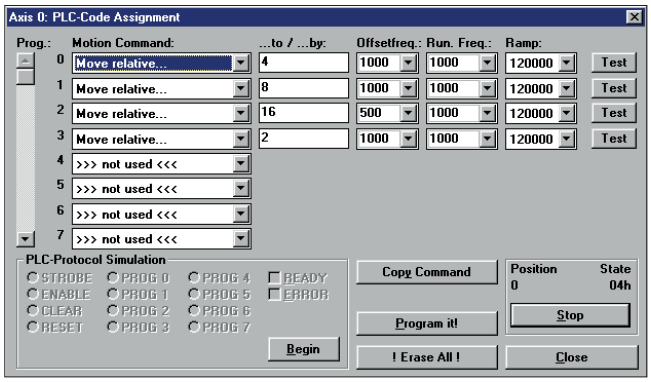


Fig. 13 PLC-code window, pulse duration mode

Table 3 Pulse duration mode

Prog. line (shown in PLC code window)	Step size and direction
0	1/2 step open
1	1 step open
2	2 steps open
3	1/4 step open
16	1/2 step close
17	1 step close
18	2 steps close
19	1/4 step close

Changing time duration mode settings

- To change the open speed, scroll the command (*Prog.*) line selection slider to 32 (or up to 35, see Table 4).
- Change the *Offsetfreq.* and *Run. Freq.* values as required and press *Program it!* button, that saves the new settings.

NOTE:
In time duration command lines (Free run), notice that offset frequency (*Offsetfreq.*) must be smaller or equal than run frequency (*Run. Freq.*), otherwise the function of the time duration is not correct.

- On command (*Prog.)* line 48 (or up to 51, see Table 4) the close speed can be changed correspondingly.
- Close *PLC-code* window.
- Now time duration mode change is done.

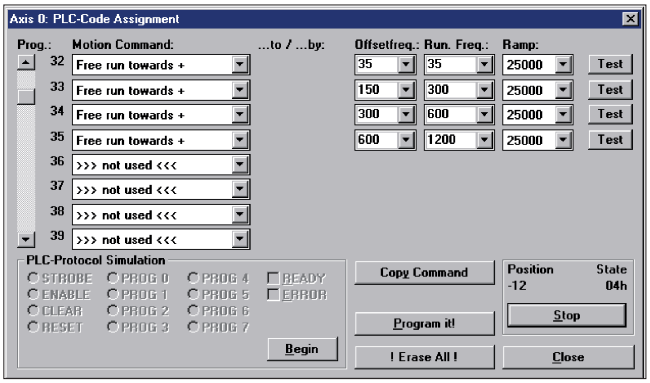


Fig. 14 PLC-code window, time duration mode

Table 4 Time duration mode

Prog. line (shown in PLC code window)	Speed and direction (factory settings)
32	150 Hz open
33	300 Hz open
34	600 Hz open
35	1200 Hz open
48	150 Hz close
49	300 Hz close
50	600 Hz close
51	1200 Hz close

See Table 2 for different option configurations.

Changing local control mode settings

- To change new speed for opening in the local control mode, scroll the command (*Prog.*) line selection slider to 40 (or up to 47, see Table 5).
- On command (*Prog.*) line 56 (or up to 63, see Table 5) the close speed can be changed correspondingly.
- Close *PLC-code* window.

Table 5 Local control mode

Prog. line (shown in PLC code window)	Action (factory settings)
40	200 Hz open
41	200 Hz open
42	200 Hz open
43	200 Hz open
44	200 Hz open
45	200 Hz open
46	200 Hz open
47	200 Hz open
56	200 Hz close
57	200 Hz close
58	200 Hz close
59	200 Hz close
60	200 Hz close
61	200 Hz close
62	200 Hz close
63	200 Hz close

5. OPERATING

5.1 General

Step motor controller has two modes: automatic (AUTO) and local (MAN).

In automatic mode the control panel is disabled and step motor is controlled by the control system. In local control mode the step motor can be driven to both directions by using the control panel push buttons, Fig. 15. Automatic/local mode selection is done by AUTO/MAN push buttons. When selecting local control mode the MAN push button must be pressed for more than one (1) second. The lit LED indicates that local control mode (MAN) has been selected. Control unit receives position information from the actuator's potentiometer. This position information is shown as percentage in the panel's LCD display. Control panel has LEDs to indicate limit switch status (open or close).

In the control panel display, 0 % indicates a closed valve and 100 % indicates an open valve.

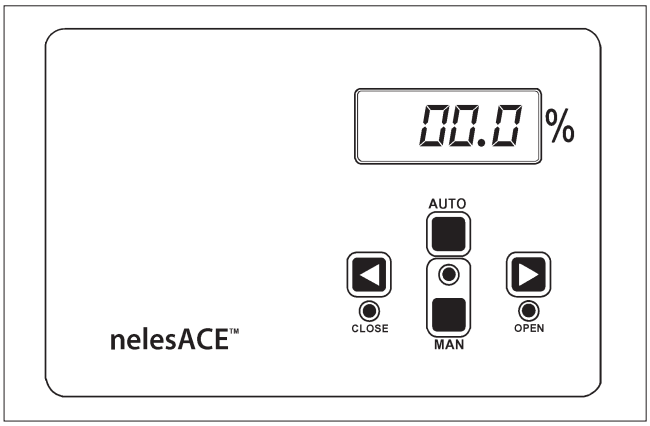


Fig. 15 Control panel

5.2 Keyboard functions

Arrow push buttons < or > :

Arrow push buttons are only active in local control (MAN) mode. The valve closes with the arrow push button < and opens with the arrow push button >. The actuator moves as long as the button is pressed down or it reaches the limit switch.

AUTO/MAN selection:

AUTO and MAN modes are selected with corresponding keys.

5.3 LEDs in the control panel

AUTO/MAN (green):

LED indicates the operation mode of control unit. When LED is lit the control unit is in manual mode.

OPEN (red):

LED is lit when the actuator is in its opening position limit.

CLOSE (red):

LED is lit when the actuator is in its closing position limit.

6. MAINTENANCE

6.1 General

NelesAce is a digital and modular device. This facilitates maintenance. The smallest step motor movements are impossible to distinguish from the movements of valve or shafts without special measuring instruments. For this reason the functioning of control unit/actuator/valve-combination must be evaluated from the hand wheel (108) movements or lack of movements. The hand wheel is attached to motor shaft. **The hand wheel's handle must be pressed down during operation.**

6.2 Calibration of the display

The output current of the actuator's position transmitter is 4 mA when the valve is closed. When the valve is fully open the output current is 20 mA. Calibration to R/I modulator is carried out at the factory according to these output values. The display card has two potentiometers (R9 and R14) which are used to calibrate display readings to equal to the readings of current output.

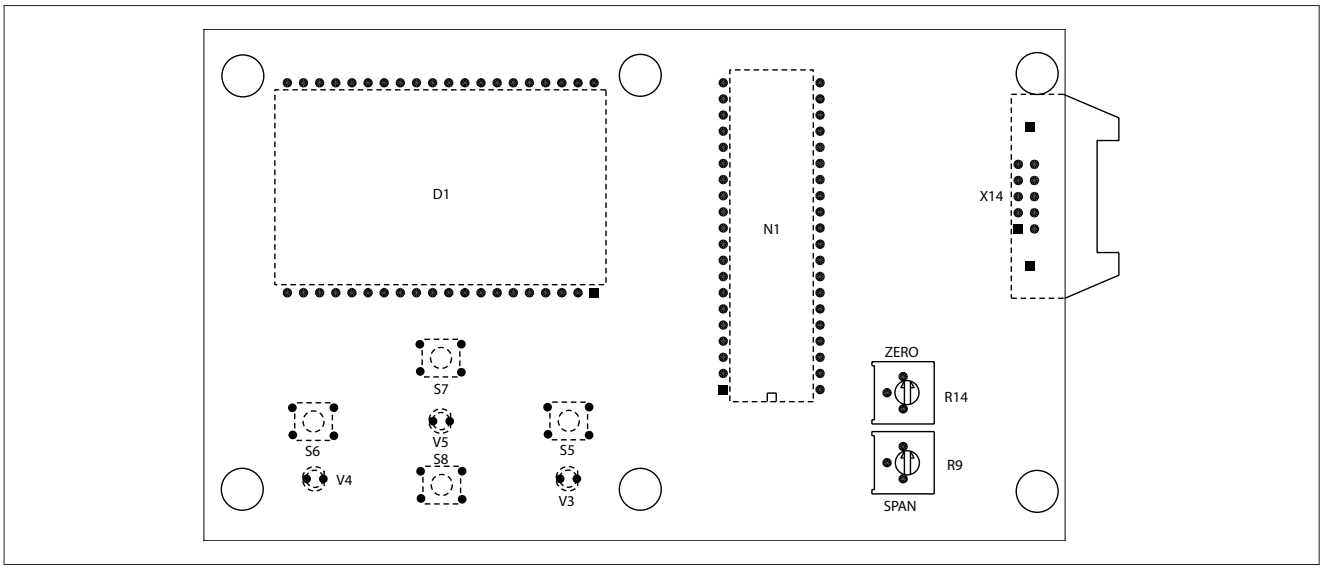


Fig. 16 Calibration potentiometers in display card

The display is calibrated with the trimmer potentiometers of display card (216), Fig. 16. Potentiometers are marked as “SPAN” (R9) and “ZERO” (R14). When the valve is in the closing position and the current is 4 mA the display is adjusted with ZERO-potentiometer to 00.0 %. Current value is measured from the pins 2 and 3 in connector X5 in connector card. When the valve is in the open position the display reading is adjusted with SPAN-potentiometer to 100.0 %.

If the display shows - % continuosly, the current loop is open. This can be the case if NelesAce is tested on the bench before connecting to DCS. In order to obtain the correct figures during the bench test connect a jumper between pins 3 and 4 on connector X5 to complete the circuit. Remove the jumper when connecting to DCS.

6.3 Replacement and calibration of potentiometer and R/I modulator

- Move valve to CLOSE position.
- Remove connector cover in actuator (143).
- Unfasten gear cover screws (126), 6 pieces.
- Disconnect modulator’s (50) connections.
- Unfasten potentiometer’s locking screws.
- Remove potentiometer and replace it with new one.
- Measure resistance from the potentiometer and adjust it to 50 Ω by turning the potentiometer’s shaft.
- Tighten potentiometer’s bracket (58).
- Tighten potentiometer’s locking screw (6).
- Attach gear cover.
- Measure current (4-20 mA) from connector X5 (2 and 3).
- When valve is in CLOSE position, current is 4 mA (potentiometer “4 mA” in R/I modulator).
- When valve is in OPEN position, current is 20 mA (potentiometer “20 mA” in R/I modulator).
- Attach connector cover in actuator.

6.4 Removal and reinstallation of the actuator

Actuator can be disengaged from the valve as follows:

- Move valve to CLOSE position.
- Switch off the power.
- Remove finger covers (170) e.g. by prying with a screwdriver from the gap between cover and bracket.
- Unfasten valve attachment bolts (173).
- Unfasten shaft’s locking screws (27).
- Remove actuator carefully without causing damage.

Reinstalling is made in reverse order. Note, that valve and actuator must be in CLOSE position before reinstallation.

- While installing the valve check the gap between segment and seat. The gap must be 0.20 mm in every part of segment. If the segment has moved, the gap may be smaller. In this case the segment must be centred before tightening the locking screws (27). Centring is made with a copper hammer or with another soft tool so as not to cause damage to the segment while hitting it. While the gap is of equal size in every part of segment, locking screws can be tightened.
- Install finger covers (170) by pressing them back in place. Check also the condition and stability of covers. If the covers do not stay properly, adjust them by bending the bracket. **Never use the actuator without properly mounted finger covers!**

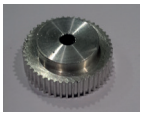
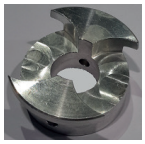
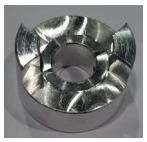
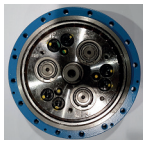
6.5 Trouble shooting

In the following charts, Fig. 17 and Fig. 18, some failure situations have been presented. The charts refer to label (228) inside the controller and the LEDs of the controller, Fig. 5. IPCOMM communication program and instructions file can be also used in trouble shooting. The instructions file clarifies the functioning of application software. These charts are only applicable to correctly mounted and connected device. Installation and connection instructions are presented in Section 2.

6.6 Recommended preventive maintenance

Recommended preventive maintenance for NelesAce, the part list and the service actions, see table 6.

Table 6 Recommended preventive maintenance for NelesAce

Part	Id-code	Part No	Part Description	Picture	Actions in one year interval	Actions in two years interval	Estimated service hours / h
1.	H025874	50, 61	Potentiometer + R/I modulator		Calibration	Component change	2
1.1.	H092865	44,45, 60	Belt roller set for NelesAce		----------	Checking the bearing condition	1
2.	H015565	47	Potentiometer belt		Checking: condition and tightness	Checking: condition and tightness	2
3.	H016030	80	Limit switches (Micro switches)		----------	Checking: condition	2
4.	H015545	107	Coupling element		Component change	Component change	1
5.	H015502	30	Spring pin		----------	Checking: condition	1
6.	H015501		Coupling (gear) Aluminum piece		----------	Checking: condition	2
7.	H015542	102	Coupling (motor) Aluminum piece		----------	Checking: condition	2
8.	H027332	216	Display card		----------	----------	1
9.	H025875	100	Step motor		Optional Spare part	Optional Spare part	2
10.		2	Gear		Checking: leakages	Checking: leakages, lubrication	1
10.1	H084903		Gear lubrication set		----------	Component change	2
11.			Valve		Visual checking of valve: • Clean valve surface of unwanted material (pulp, process medium etc.) covering it. • Check that the operation of the valve is smooth (no oscillation/clap between parts detected). • Check that no leakage in valve body/shaft clamping is detected.	Visual checking of valve: • Clean valve surface of unwanted material (pulp, process medium etc.) covering it. • Check that the operation of the valve is smooth (no oscillation/clap between parts detected). • Check that no leakage in valve body/shaft clamping is detected.	

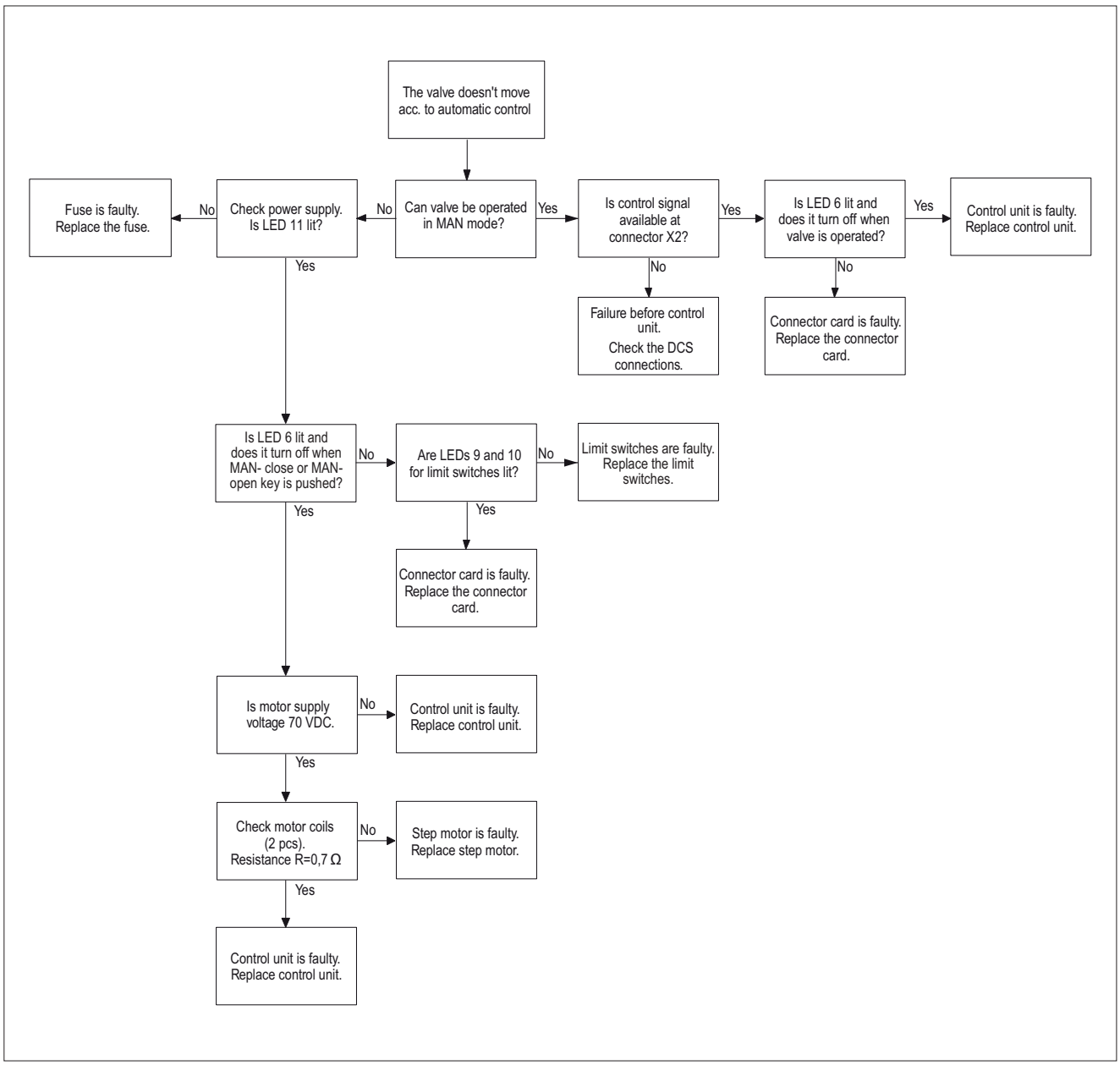


Fig. 17 Trouble shooting chart 1

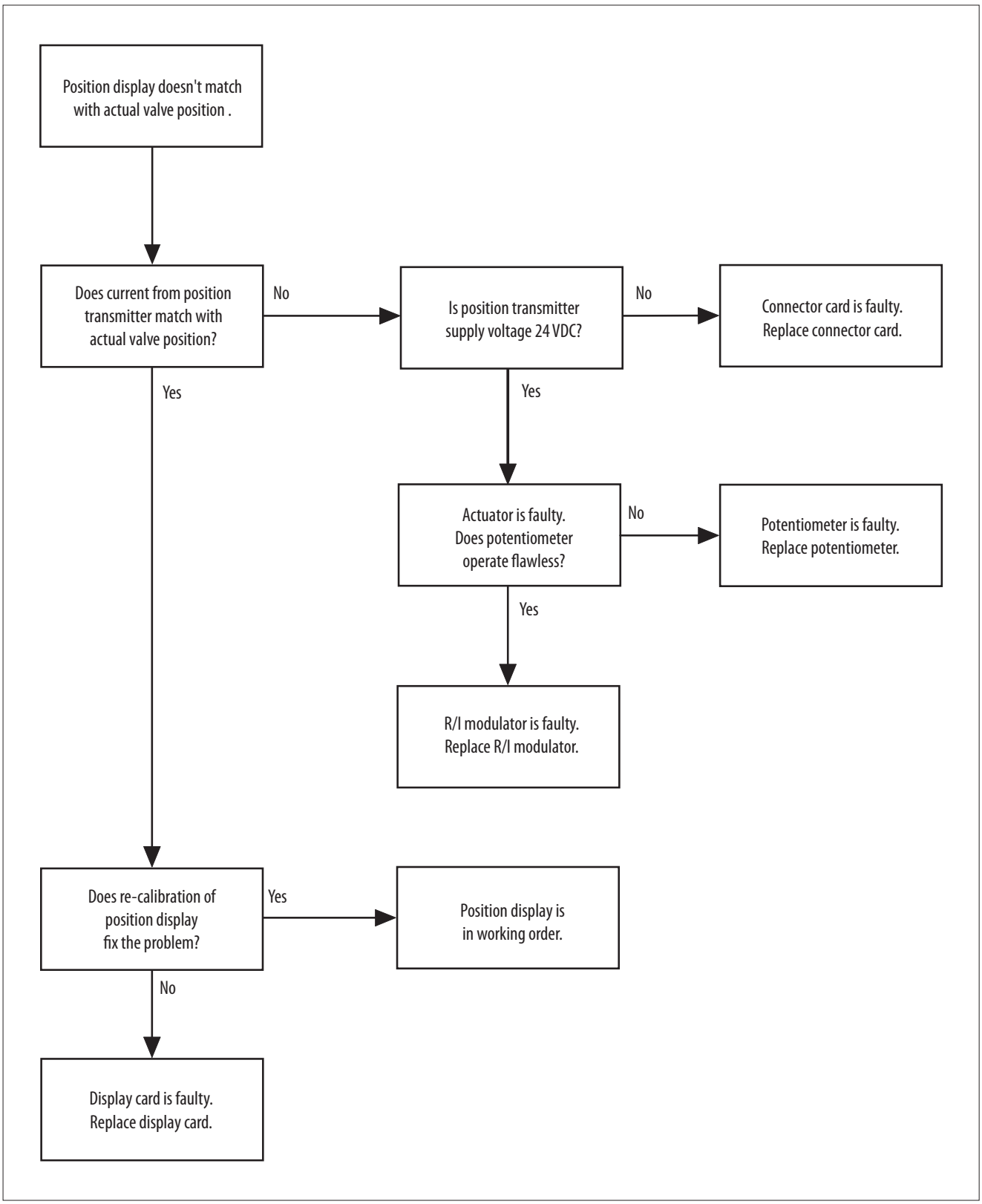
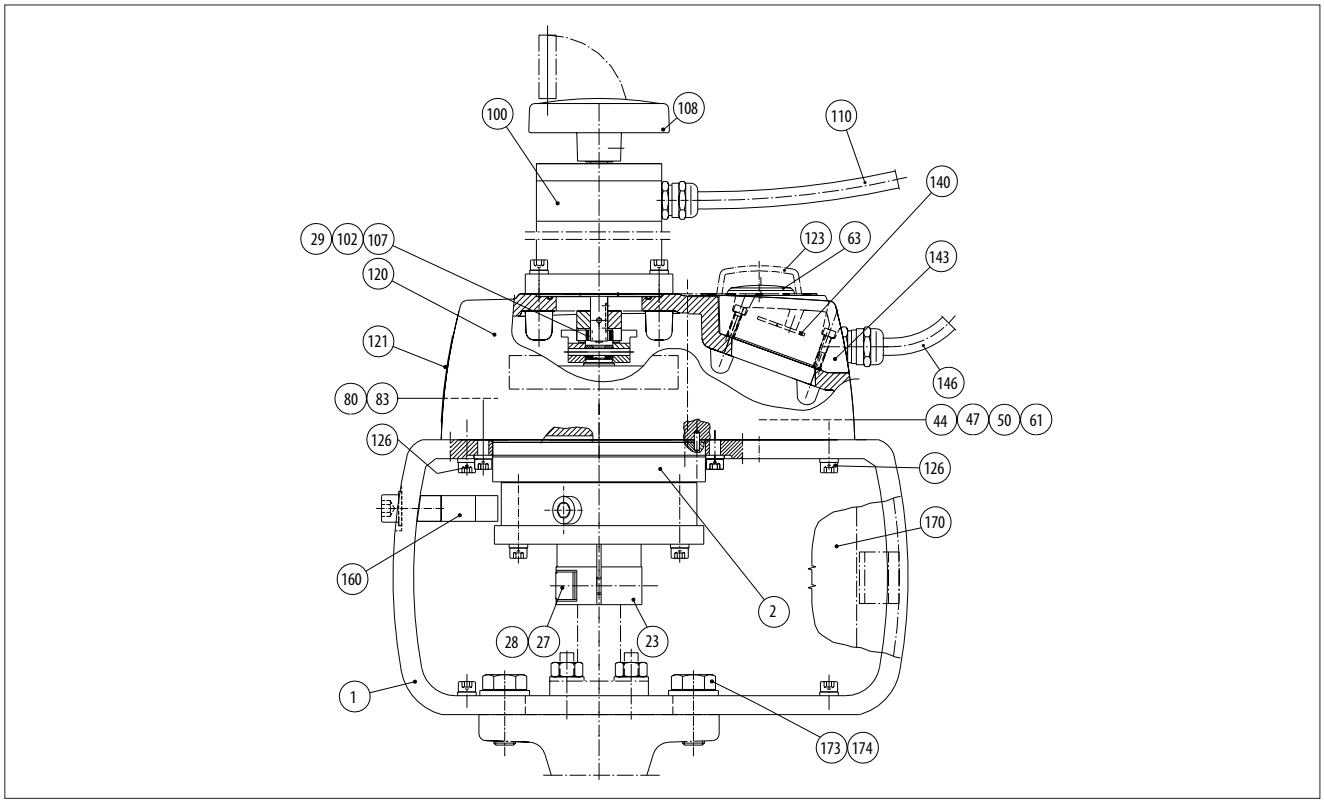


Fig. 18 Trouble shooting chart 2

7. ASSEMBLY DRAWINGS AND PART LISTS

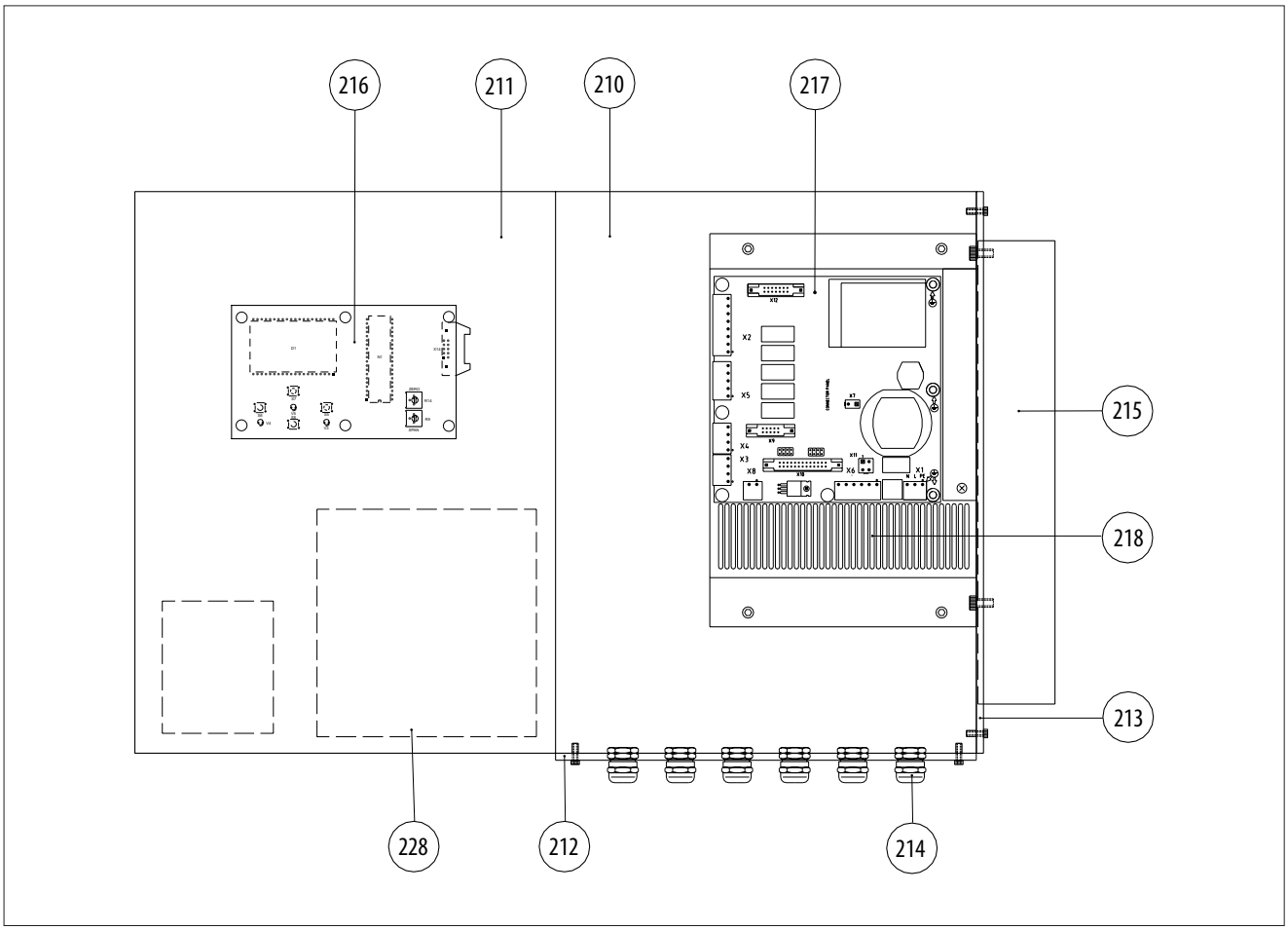
7.1 Actuator



Part	Qty	Description	Available spare parts	Recommended spare parts
1	1	Mounting bracket		
2	1	Gear		
23	1	Flange		
27	2	Locking screw		
28	2	Locking washer		
29	1	Coupling		
44	1	Potentiometer belt roller		
47	1	Potentiometer belt		
50	1	Potentiometer	X *)	
61	1	R/I modulator	X *)	
63	1	Pointer		
80	2	Limit switch	X	
83	2	Release device		
100	1	Step motor	X	X
102	1	Coupling		
107	1	Coupling element		
108	1	Hand wheel	X	
110	1	Motor cable		
120	1	Gear cover		
121	1	Identification plate		
123	1	Window		
126	6	Hexagon socket screw		
140	1	Circuit board	X	
143	1	Connector cover		
146	1	Limit switch and position feedback cable		
160	1	Limiter		
170	2	Finger cover		
173	2/4	Hexagon screw		
174	2/4	Spring washer		

*) Delivered as a set

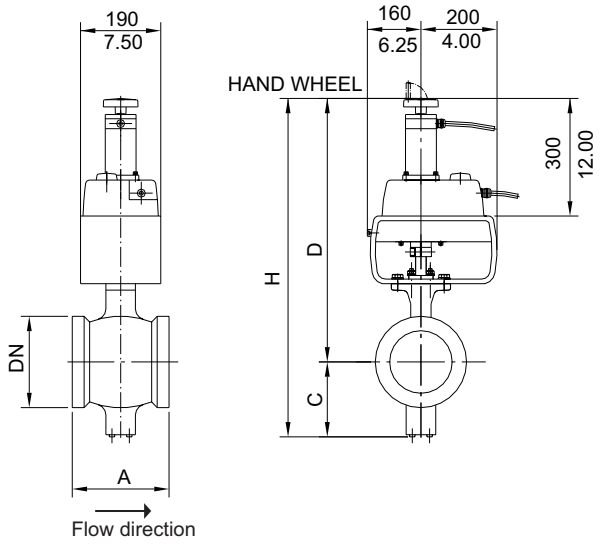
7.2 Control unit

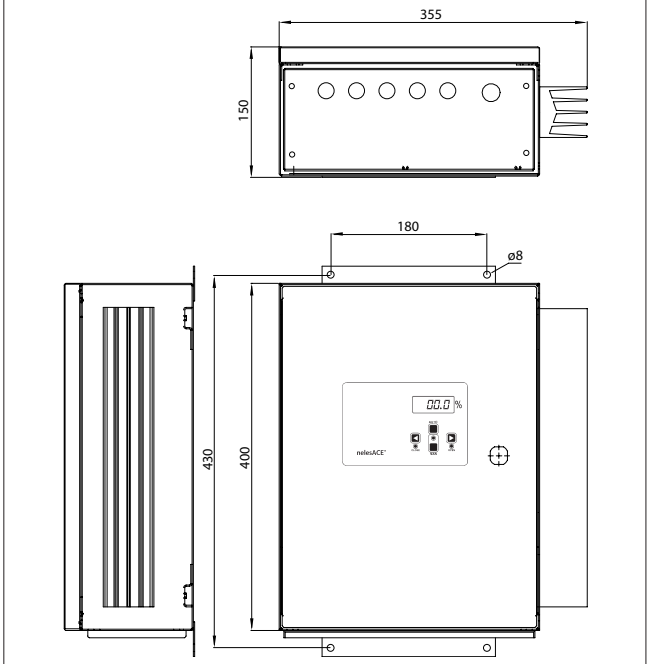


Part	Qty	Description	Available spare parts	Recommended spare parts
210	1	HST housing		
211	1	HST housing cover		
212	1	Bottom plate		
213	1	Side plate		
214	6	Lead in socket		
215	1	Heat sink		
216	1	Display card	X	
217	1	Connector card	X	
218	1	Controller	X	X
228	1	Adhesive label		

8. DIMENSIONS AND WEIGHTS

The orientation of the actuator relative to the valve is always as shown below.





DN	Actuator	Dimensions, mm								Weight, kg	
		RA				RE					
		A	C	D	H	A	C	D	H	RA	RE
50	NC4L-50	75	95	530	625	124	91	610	705	35	40
65	NC4L-65	75	100	540	640	145	97	615	715	38	42
80	NC4L-80	100	110	555	665	165	108	645	755	40	45
100	NC4L-100	115	120	565	685	194	120	655	775	42	50
150	NC4L-150	160	175	610	785	229	174	700	875	59	72
200	NC4L-200	200	200	645	845	243	201	755	960	83	131
250	NC4L-250	240	250	720	970	297	251	830	1085	115	156
300	NC4L-300	-	-	-	-	338	269	855	1125	-	220
350	NC4L-350	-	-	-	-	400	311	950	1265	-	300
400	NC4L-400	-	-	-	-	400	353	1015	1370	-	380
500	NC4L-500	-	-	-	-	508	420	1110	1530	-	740

Size	Actuator	Dimensions, inch								Weight, lb	
		RA				RE					
		A	C	D	H	A	C	D	H	RA	RE
2	NC4L-50	2.95	3.74	20.87	24.61	4.88	3.58	24.02	27.76	78	89
2 1/2	NC4L-65	2.95	3.94	21.26	25.20	5.71	3.82	24.21	28.15	84	93
3	NC4L-80	3.94	4.33	21.85	26.18	6.50	4.25	25.39	29.72	89	100
4	NC4L-100	4.53	4.72	22.24	26.97	7.64	4.72	25.79	30.51	93	111
6	NC4L-150	6.30	6.89	24.02	30.91	9.02	6.85	27.56	34.45	131	160
8	NC4L-200	7.87	7.87	25.39	33.27	9.57	7.91	29.72	37.80	184	291
10	NC4L-250	9.45	9.84	28.35	38.19	11.69	9.88	32.68	42.72	256	347
12	NC4L-300	-	-	-	-	13.31	10.59	33.66	44.29	-	489
14	NC4L-350	-	-	-	-	15.75	12.24	37.40	49.80	-	667
16	NC4L-400	-	-	-	-	15.75	13.90	39.96	53.94	-	844
20	NC4L-500	-	-	-	-	20.00	16.54	43.70	60.24	-	1644

9. TYPE CODE

SEGMENT VALVE RA AND RE FOR nelesACE

1.	2.	3.	4.	5.	6.	7.	8.		9.
	RA	-	W	100	A	W	-	/	-
	RE	M	W	100	A	W	A	/	-

1. sign	CV-CODE
-	Standard CV, without sign

2. sign	PRODUCT SERIES / DESIGN
RA	Wafer, reduced bore, Neles face-to-face lenght, Body PN50 / ANSI Class 300*
RE	Flanged, reduced bore, ISA S 75.04 and DIN/IEC 534 Part 3-2

3. sign	RA PRESSURE RATING	RE PRESSURE RATING
-	Body PN40 / ASME class 300	-
J	-	Body PN 10, flanged
K	-	Body PN 16, flanged
L	-	Body PN 25, flanged
M	-	Body PN 40, flanged
C	-	Body ANSI class 150, flanged
D	-	Body ANSI class 300, flanged
R	-	JIS 10K flanges
S	-	JIS 16K flanges
A	Special, to be specified	

4. sign	CONSTRUCTION
W	Standard, drive shaft with keyway for nelesACE. Shaft/segment connection pinned and welded.

5. sign	SIZE				
	Max shut-off pressure	DIN/ISO PN10	DIN/ISO PN16	DIN/ISO PN25	DIN/ISO PN40
050*	50 bar	use PN40	use PN40	use PN40	M
065*	50 bar	use PN16	K	use PN40	M
080*	50 bar	use PN40	use PN40	use PN40	M
100*	40 bar	use PN16	K	use PN40	M
150*	40 bar	use PN16	K	use PN40	M
200	35 bar	J	K	L	M
250	35 bar	J	K	L	M
300	30 bar	J	K	L	M
350	30 bar	J	K	L	M
400	30 bar	J	K	L	M
500	30 bar	J	K	L	M

***** According to DIN standard , flange dimensions in some sizes and pressure classes are same

6. sign	BODY	SEGMENT	SCREWS	SHAFT, PINS / BEARINGS
A	CF8M	Type AISI 329 + HCr	A2-70	Type AISI 329 / PTFE
C	CG8M	CG8M + HCr	B8M	XM-19 / PTFE

Gland packing: PTFE V-ring type Blind flange: PTFE

7. sign	SEAT MATERIAL AND CONSTRUCTION
W	Seat: Stainless steel + cobalt based hard facing. Seat welded away from segment. Service: Basis weight service, unidirectional non tight.

8. sign	MODEL CODE
-	Version 0
A	Version A is used only with DN50, DN80-DN250 (Only for RE, NOT RA)

9. sign	FLANGE FACING
-	EN 1092-1 Type B1 (Ra 3.2 - 12.5), standard Cover: ASME B16.5 Ra 3.2 - 6.3 (Smooth finish, RMS 125 - 250). DIN 2525 Form E (Ra 4)

STEP MOTOR ACTUATOR nelesACE FOR BASIS WEIGHT CONTROL

1.	2.			
NC4L	400	-	ND4KS2	2

1. sign	PRODUCT SERIES / DESIGN
NC4L	Step motor actuator. Ambient temperature 0...+50 °C / +32...+122 °F, IP65 enclosure Applicable only with RA_W -serie valves.
NC4M	Step motor actuator. Ambient temperature 0...+50 °C / +32...+122 °F, IP65 enclosure Applicable only with RE_W -serie valves.

2. sign	ACCORDING TO THE SIZE OF THE SEGMENT VALVE
	Available for sizes: 050, 065, 080, 100, 150, 200, 250, 300, 350, 400, 500. RA_W series available for sizes: DN050 ... DN250 RE_W series available for sizes: DN050 ... DN500

CONTROL UNIT FOR nelesACE FOR BASIS WEIGHT CONTROL

			1.	2.
NC4L	400	-	ND4KS2	2

1. sign	PRODUCT SERIES / DESIGN
ND4KS2	Control unit for pulse or time duration signals, includes push buttons for manual operations and IPCOMM software for serial communication protocol of the RS232 or RS485 interface. ½ step mode as a default. Position indication LCD. IP65 enclosure

2. sign	SUPPLY VOLTAGE
1	110 VAC
2	230 VAC

Exemble:

RAW050AW-NC4L050-ND4KS22

Sign: 050, 065, 080, 100, 150, 200, 250.(size).

REJW200AW-NC4M200-ND4KS22

Sign: J/K/L/M/C/R/S (flange drilling)

Sign: 050, 065, 080, 100, 150, 200, 250, 300, 350, 400, 500. (size)

IMO 8ACE71en
https://www.valmet.com/products/valves/segment-valves/nelesace-basis-weight-control-valve/

SOFTWARE
https://www.valmet.com/flowcontrol/valves/valve-software/

or

Here you find QR code for our product web pages and support material.
Scan QR code with QR scanner on your mobile phone or tablet.

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