

Silo overflow monitoring system

the complete protection for silos and vessels

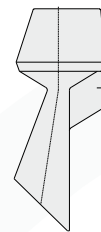
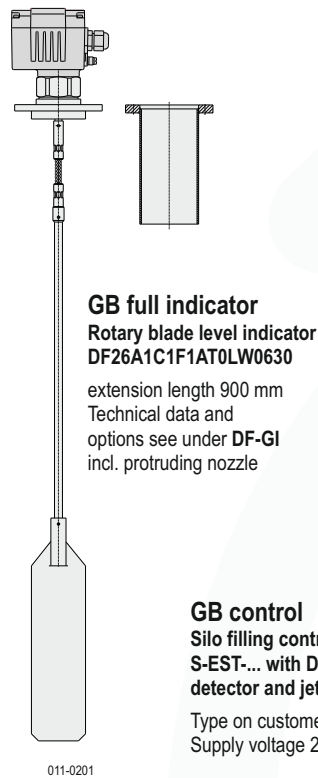
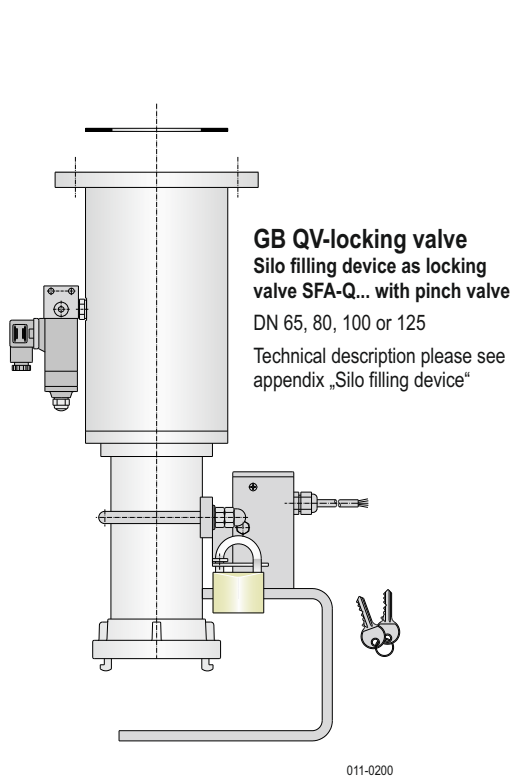


Appliance information

Index	Page
GB Basic module function sequence	02
E1 Pressure switch for pressure monitoring and limitation of the last surge	03
E2 Full indicator 2 rotary blade level indicator for safety full detection	03
E3 Safety valve Silo-Ex-Implo-Valve for pressure release	03
E4 Jet filter silo jet filter with pneumatic purification	03
E5 Vibrating filter control for vibrating filter	04
E6 Silo unblocking selection switch for silo filling	04
E7 Operator panel on site operating	04
E8 Signal lamp rotating mirror beacon as signal lamp	04
E9 QV monitoring pinch valve monitoring	04
E10 Empty indicator rotary blade level indicator for demand or empty detection	04
E11 Extensions extension of silo filling control	05
E12 Ball locking valve silo filling device as locking valve	05
E13 Control sieve sieve for silo filling pipe	05
GB Signal horn appliance information	06
E3 Safety valve appliance information	07
E8 Signal lamp appliance information	08
Appendix Silo filling device appliance information	
Control solenoid valve	
Quick air-exhaust valve Pressure switch	

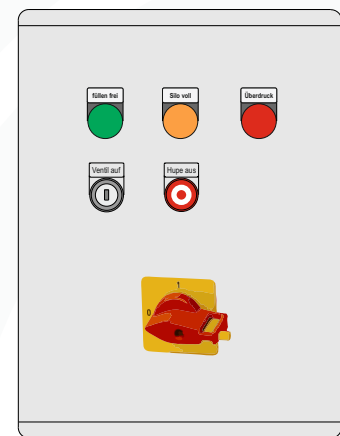
Appliance information

GB basic module



GB signal horn
Horn for acoustic signals
HPW11-07
Technical data see page 8 (HP-GI-01)

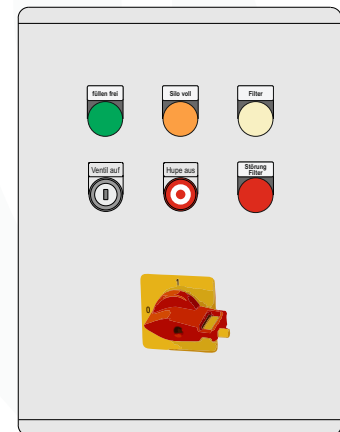
011-0202



GB control
Silo filling control S-EST... with Dilo pressure detector and jet-filter control
Type on customer's demand
Supply voltage 230 V, 24 V DC

Function sequence

- While coupling the filling pipe, the swivelling lever swivels beside**
 - the limit switch will be actuated
 - the overfill monitoring system will be put into operation
 - the full indicator will be switched on
 - the jet filter starts the operation and cleans in intervals during the whole filling process
 - the blocking valve opens
 - the green lamp "filling o.k." lights up
- The filling process can be started**
- The filling level reaches the full indicator**
 - the green lamp switches off
 - the red lamp "Silo full" lights up
 - the horn sounds (the signal of the horn can be turned off by pushing the pushbutton "Horn off")
- The filling process will be stopped immediately and the filling pipe will be emptied**
- After approx. 30 sec. the blocking valve closes the filling pipe automatically**
(under supervision, the blocking valve can be opened with a key-operated switch, to empty the filling pipe or to refill small remaining quantities).



GB control
Silo filling control S-EST... with filter control
Type on customer's demand
Supply voltage 230/400 V, 24 V DC

011-0203

ATEX option

Dust  for all devices

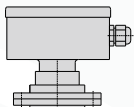
ATEX option

Gas+  Dust  for a part of devices

Appliance information

E supplementary modules

E1 pressure switch



E1 silo pressure switch for pressure monitoring and limitation of the last surge E1-MSD-070

Technical data see under MSD-GI-01
incl. protruding nozzle, red lamp "overpressure" and controller part are installed in the silo filling control

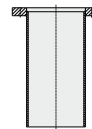
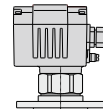
011-0204

Function

If the pressure increases in the silo, e.g. during the last torrent, the pressure detector will register this depending on the adjusted pressure and will signalise to the controller.

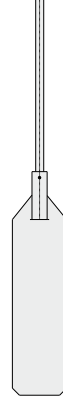
- the blocking valve closes the filling pipe immediately
- the green lamp "filling free" switches off
- the red lamp "overpressure" lights up
- the horn sounds
- the filter is cleaning itself

E2 full indicator 2



E2 rotary blade level indicator as safety full indicator E2-DF26A1C1F1AT0LW0430

extension length 700 mm
Technical data see under DF-GI-01
incl. protruding nozzle



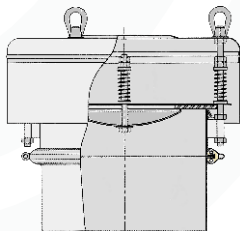
011-0205

Function

Second full indicator instead of a timer

- depending on volume, instead of time controlled after-run
- if the filling level reaches the measuring blade of the safety full indicator the blocking valve will close immediately

E3 safety valve



011-0206

E3 Silo-Ex-Impl-Valve for pressure release E3-SEI-250

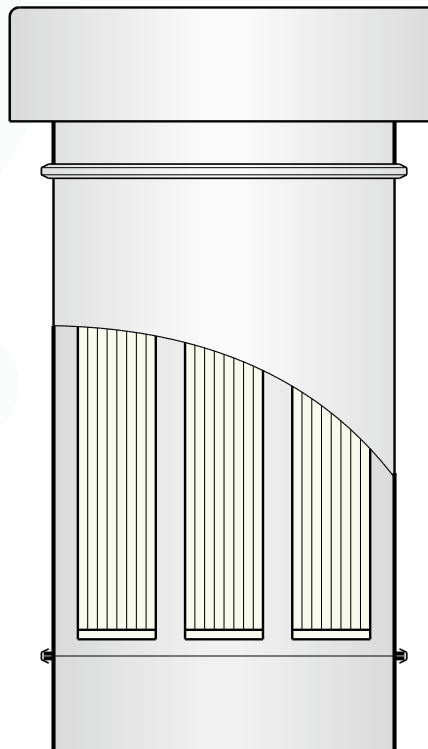
Technical data see page 9 (SEI-GI-01)
incl. protruding nozzle

Function

The Silo-Ex-Impl-Valve protects silos from overpressure and low pressure while

- pneumatic filling
- Sticking of the dust precipitation filter
- Fermentation
- Temperature variations
- Condensation
- high output
- Aspiration

E4 jet filter



E4 silo jet filter with pneumatic purification

Filter area depending on requirement:

E4-SJF-130 with 13 m²

E4-SJF-200 with 20 m²

E4-SJF-240 with 24 m²

Silo top filter with purification by compressed air
incl. Protruding nozzle,
time controller and necessary compressed air
control valves, compressed air switch to control if
compressed air is available and in the controller
are installed the silo filling control and a red lamp
"no compressed air".

Funktion from the air blast circuit breaker

- If the compressed air sinks under approx. 5 bar
- after 30 seconds the blocking valve closes the filling pipe
 - the green lamp "filling free" goes out
 - the red lamp "no compressed air" lights up
 - the horn sounds

011-0207

Appliance information

E supplementary modules

E5 vibrating filter



E5 controller for vibrating filter of the silo E5-SRS

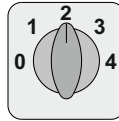


Controlling of a vibrator 0.18 up to 0.25 kW, installed in the silo filling control, with white lamp "filter" and red lamp "failure filter"

Function

- the filter will be vibrated (cleaned) before and after the filling process

E6 silo unblocking



011-0208

E6 selection switch for silo filling E6-SFG

Switch to select the silo filling and to avoid the false filling
Optional installed in the controller or for installation in the control room of the plant

Function

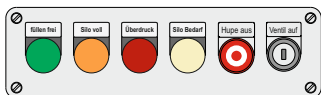
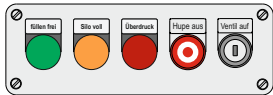
- **Setting „0“** - all silos inaccessible
- **Setting „1“** - Silo 1 may be filled, all the other silos are inaccessible
- **Setting „2“** - Silo 2 may be filled, all the other silos are inaccessible etc.

E7 operator panel



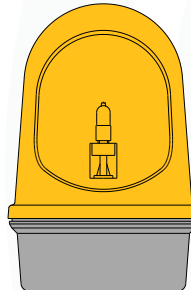
E7 on site operating E7-SVB

in various models for mounting next to the filling pipe and for operation directly on-site



011-0209

E8 signal lamp



011-0210

E8 rotating mirror beacons as signal lamp E8-HL883

yellow with halogen lamp, additional or instead of the horn

Technical data see page 10 (HL-GI-01)

E9 QV monitoring



E9 pinch valve monitoring E9-QSD

pressure switch installed at the pinch valve with corresponding controller part installed in the silo filling control

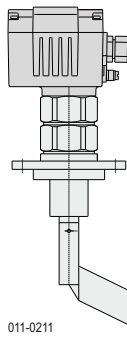


Function

Monitoring of pinch valve functions

- E9.0** signalises "Valve defect" with yellow light
- E9.1** signalises "Valve closed" with white light
- E9.2** signalises "Valve closed" - "Valve open" with two white lights

E10 empty indicator



011-0211



E10 rotary blade level indicator for demand or empty detection

E10.1-DF23A1C1F1AS2V

white light "silo demand" or "silo empty" and controller part installed in the silo filling control

Function

- E10.1** signalises "silo empty" with white light
- E10.3** signalises "silo demand" with white light
other functions on customer's request

Appliance information

E supplementary modules

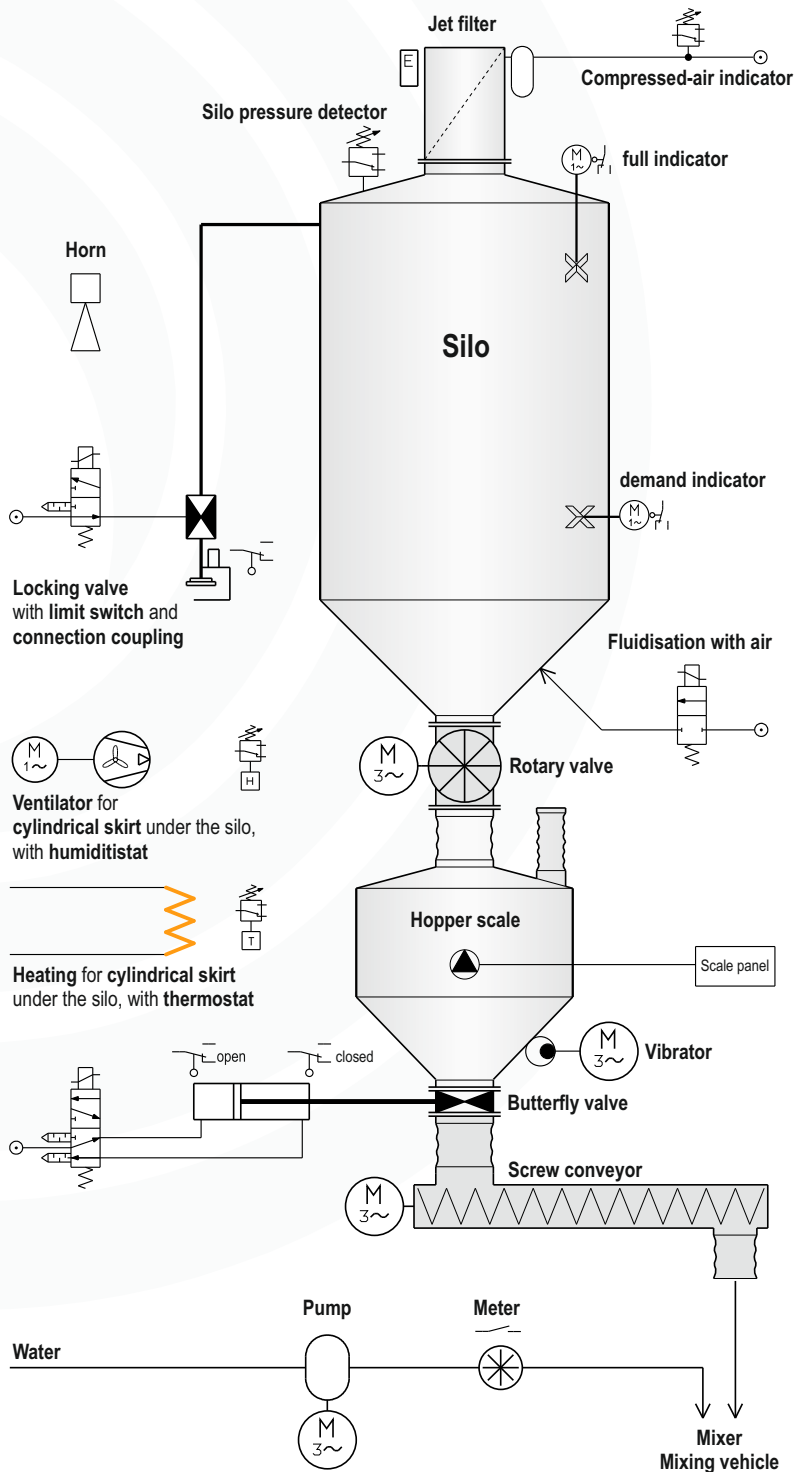
E11 extensions

E11 extensions of silo filling control

E11-EST-EW

supplementation of the electric control for further silo components e.g. as like as shown in the diagram.

On customer's request, other models possible also



011-0212

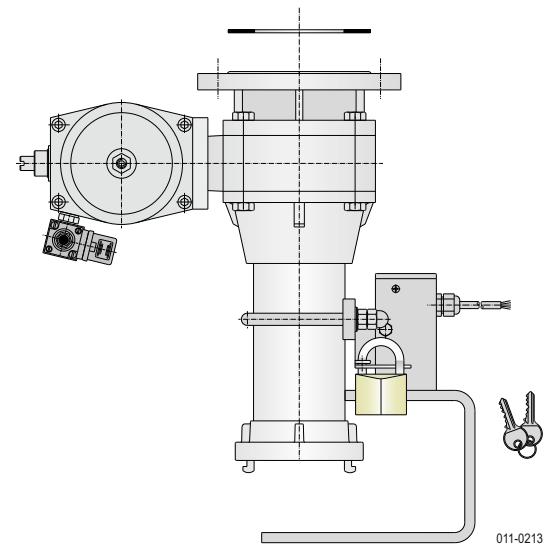
E12 ball valve

E12 silo filling device as locking valve

E12-SFA-K... with ball valve

DN 80 or 100 mm

Technical description please see appendix „Silo filling device“



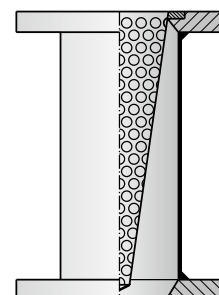
011-0213

E13 Control sieve

E-13 silo control sieve

E13-SFS

with hole size 10 mm for mounting in the filling pipe

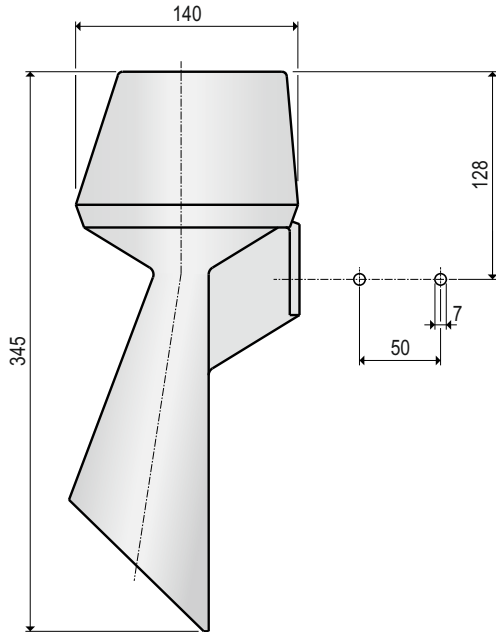


011-0214

Appliance information

GB signal horn

Dimensions



006-0201

Use

All-purpose signal horn for dry and moist locations inside as well as for the use outdoor.

Technical data

Material	Housing	ABS
Colour		grey
Mounting position		vertical
Volume		approx. 110 dB(A), 1m
Ambient temperature		-20 °C ... +40 °C
Supply voltage	06	110 ... 120 V ~ (AC)
	07	220 ... 240 V ~ (AC)
	13	24 V = (DC)
Power consumption		max. 0.3 A
Cyclic duration factor		100 % (Continuous operating mode)
Cable entry		Gland M20x1.5
Type of protection		IP55 acc. to DIN EN 60529
Maintenance		none
Weight		1.15 kg

Type selection

Order code

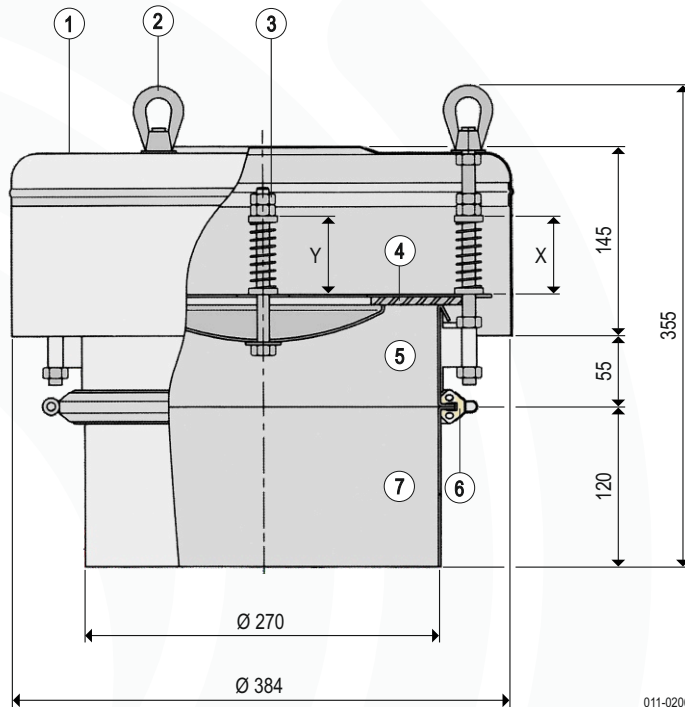
HPW11-06	110 ... 120 V ~
HPW11-07	220 ... 240 V ~
HPW11-13	24 V =/~

Subject to modification

Appliance information

E3 safety valve

Dimensions



011-0206

Use

The Silo-Ex-Implo-Valve protects silos and vessels from high pressure and low pressure. The valve has to be mounted at the top of silos or vessels.

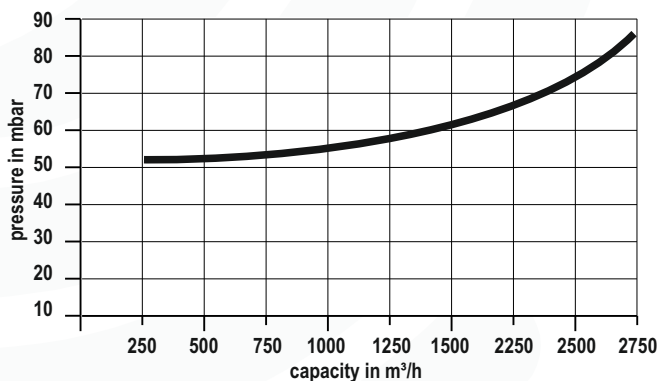
It protects against:

- pneumatic filling
- sticking of the dust precipitation filter
- fermentation
- temperature variations
- condensation
- high output
- aspiration

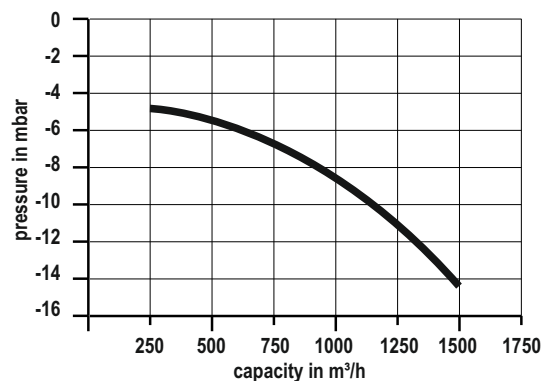
Technical data

Type	E3-SEI-250
Materials	<p>1 Covering hood Stainless steel 1.4301 / 304</p> <p>2 Lifting bracket 1.4301 / 304</p> <p>3 Spring guidance, screws and nuts 1.4301 / 304</p> <p>4 Valve disc 1.4301 / 304 and gasket white, food</p> <p>5 Corpus 1.4301 / 304</p> <p>6 Clamping ring 1.4301 / 304 and profiled gasket, neopren white, food</p> <p>7 weld-in frame 1.4301 / 304</p>
Installation	vertical (flared-end tube horizontal)
Temperature range	Ta -25 °C ... +70 °C

Curve by overpressure



Curve by low pressure



Adjustment tables

High pressure		Low pressure	
X mm	mbar	Y mm	mbar
65	60	50	12
75	50	63	9
85	40	80	5
		92	2

Factory setting

High pressure	50 mbar
Low pressure	2 mbar
max. adjustable pressure	
High pressure	60 mbar
Low pressure	12 mbar

ATEX option

B4 Dust  II 2D IIIB

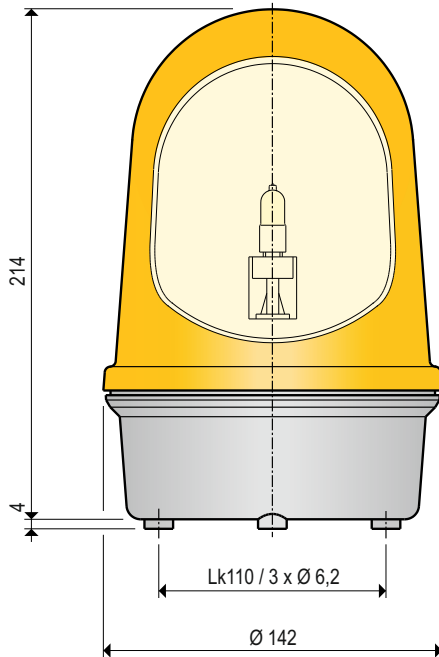
ATEX option

B6 Gas+ Dust  II 2G IIB and II 2D IIIB

Appliance information

E8 signal lamp

Dimensions



006-0202

Use

All-purpose signal lamp for dry and moist locations inside as well as for the use outdoors.

Technical data

Material	Housing	PC/ABS-Blend
	Collar/cap	PC, translucent
Colour	Housing	black
Collar colour		1 red
		2 green
		3 yellow
Installation	upright or hanging	vertical
Fixing		base mounting
Ambient temperature		-30 °C ... +50 °C
Supply voltage	75	24 V \equiv (DC)
	68	220 ... 240 V
Current consumption		3.0 A
Drive		friction wheel, low-wear
Rotation speed		180 U/min
Life duration of drive		>5.000 h
Duty cycle		100 %
Halogen lamp		35 Watt
Cable entry		Ø 5 ... 7 mm
Type of protection		IP65 acc. to DIN EN 60529
Weight		0.760 kg

Type selection

Order code

HL883-*75 24 V \equiv
HL883-*68 220 ... 240 V ~
* = Collar colour

Subject to modification