

Automatic Cleaning System Chemoclean® CYR 10 / CYR 20

Spray cleaning system for pH, oxygen,
turbidity and conductivity



Coatings, flocculation, biological growth or limestone deposits occur in many industrial applications. Wherever pH value, dissolved oxygen or turbidity are being monitored continuously, the proven Chemoclean® system guarantees long life and excellent measuring reliability combined with low maintenance overheads. In order to guarantee measurement reliability in many industrial applications, the Chemoclean® system is indispensable.

Areas of application

- Sewage treatment plants
- Industrial water treatment
- Chemical industry
- Flue gas purification plants

Benefits at a glance

- Meets industry standard
- IP 55 housing
- Cleaning injector for use in Ex zone 1
- Maintenance-free and extremely reliable
- Optimised cleaning provides long life cycle and high measurement accuracy
- Chemical-saving cleaning with the user-adjustable weekly programme and the "cleanser saving function"
- Trouble-free pH control by activating a hold contact on the Mycom instrument during cleaning
- Chemoclean® demand control by PLC/PCS or Mycom SCS Sensor Check System
- Complex controls can be easily implemented, e.g. controlling the Probit CPA 463



System overview

The Chemoclean® comprises two basic units:

Programme sequencer CYR 20 with

- control relays
- hold function
- weekly and cycle programmes
- external start
- external hold
- external activate

Cleaning injector CYR 10 with

- valves for drive water and cleaning agent
- mixture ratio adjustment

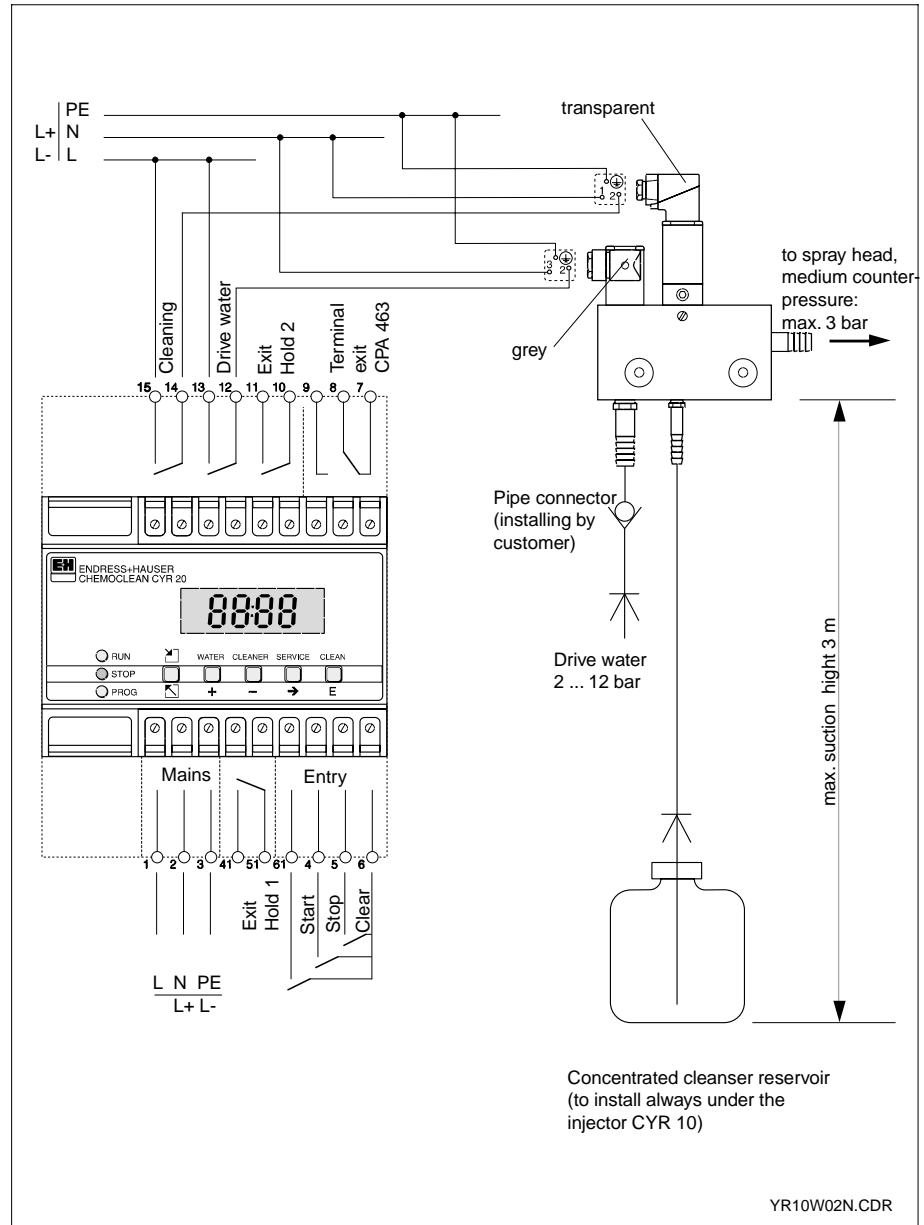
The following is required to operate the Chemoclean®:

- power supply (see how to order)
- drive water
- cleaning agent

Programme sequencer CYR 20 and injector CYR 10 with connections

left
Programme sequencer CYR 20

right
Injector CYR 10



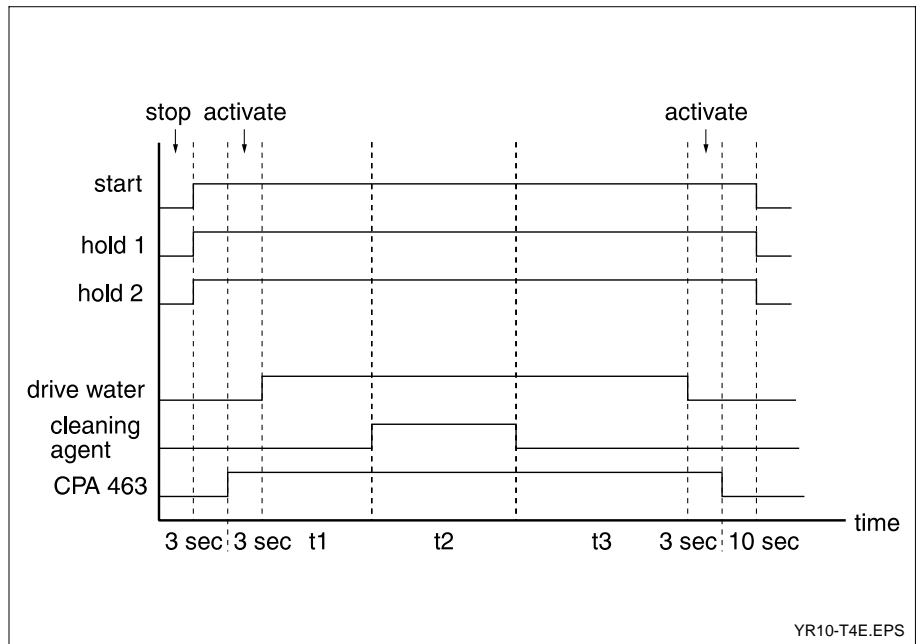
Voltage supply for injector CYR 10

The relays for the injector valves are a part of the programme sequencer. The injector valve relays are supplied with power either through an external voltage source connected to the programme sequencer or via the programme sequencer power supply.

The electrovalve connectors must not be interchanged for reasons of interference immunity. They are designed in different colours for this purpose.

It is possible to turn the connectors in steps of 90°.

Functional diagram Relay contacts



Adjustments

The programme sequencer has two operating modes: "Setting" and "Automatic operation". The "Setting" mode is used to enter the times for automatic operation. In the "Automatic operation" mode, the functions are performed as set in the "Setting" mode. In addition to this, the following manual functions are available in the automatic mode, primarily for purposes of maintenance:

- Start a complete cleaning sequence
- Drive water
- Cleaning agent
- Stop; to prevent automatic cleaning, e.g. during maintenance work such as calibration.

The following adjustments can be made on the programme sequencer:

Cleaning sequence

- Time t_1 , water rinse (1 ... 60 s)
- Time t_2 , cleanser (1 ... 60 s)
- Time t_3 , second rinse (1 ... 60 s)

Start of cleaning cycle; selections available are:

- weekly programme or
- cycle programme

Weekly programme:

- Entry of 12 starting times (real time) per day, e.g. 10:30, 13:40, etc.
- 7 days, individually adjustable, i.e. to disable cleaning on weekends

Cycle programme

- Entry of cycle time (hh:mm) (10 min ... 99 hours), e.g. "06:00" for cleaning at intervals of 6 hours

Cleaning agent saving programme

- Entry of a number n (1 ... 9), i.e. only every n -th cleaning cycle is performed with cleaning agent; all other cycles are limited to rinsing with water

The programme sequencer supplies and processes the following external signals:

External start

- Starts the cleaning sequence via the contact input, e.g. triggered by a PLC/PCS or the Mycom SCS Sensor Check System

External stop

- Contact input to interrupt the cleaning cycle; can be used, for example, when cleaning would interfere with a metering or control process, etc.

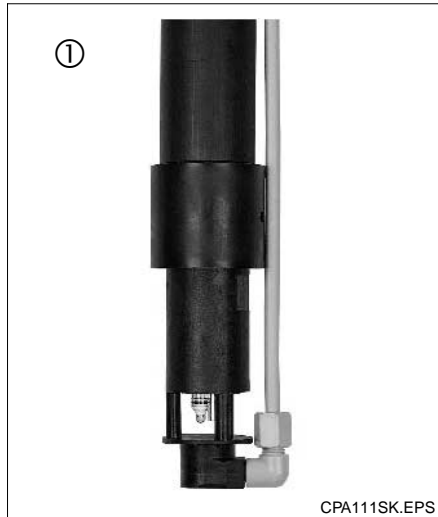
Hold contact

- Contact that can be used to control another device, e.g. a lamp, a PLC or the Mycom measuring transmitter.

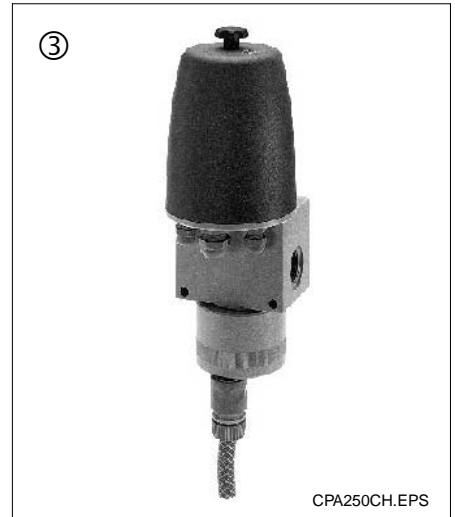
Control of Probit retractable assemblies

Endress+Hauser offers the control system Autoclean CPC 20 for automatic cleaning with Probit retractable assemblies.

The version CPC 20-C contains besides the programme sequencer CYR 20 the required 5/2 way valve for control of the assembly and the pressure and proximity switches for the position feedback.



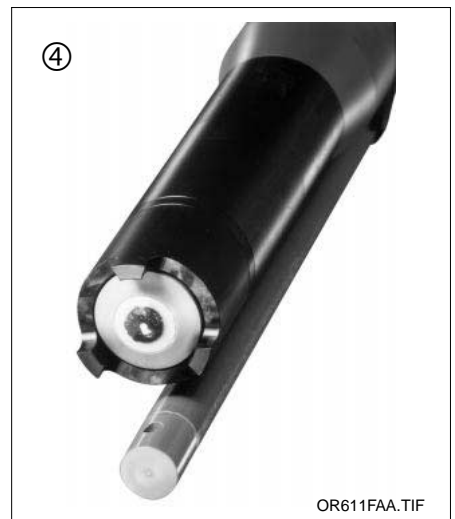
CPA111SK.EPS



CPA250CH.EPS

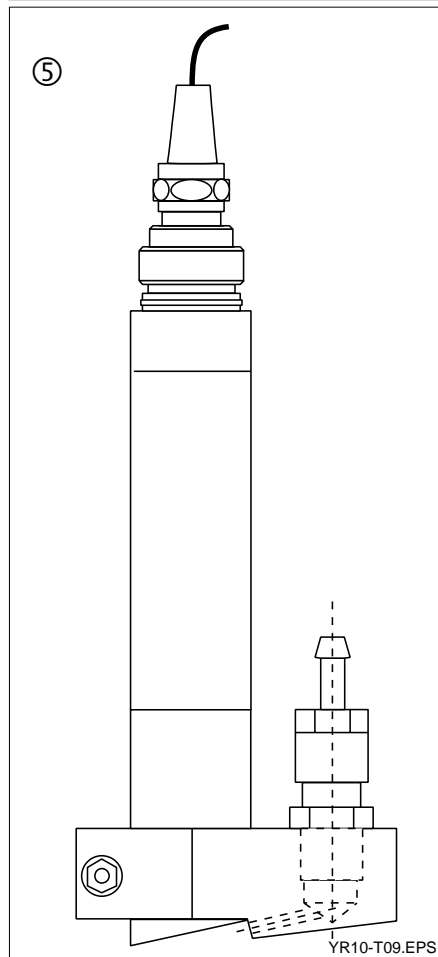


CLA111R.EPS



OR611FAA.TIF

- ① Dipsys CPA 111 with spray head
- ② Dipsys CLA 111 with spray head
- ③ CPA 250-A with spray head
- ④ CYA 611 with COS 4 and spray head



YR10-T09.EPS



COR3GS.EPS

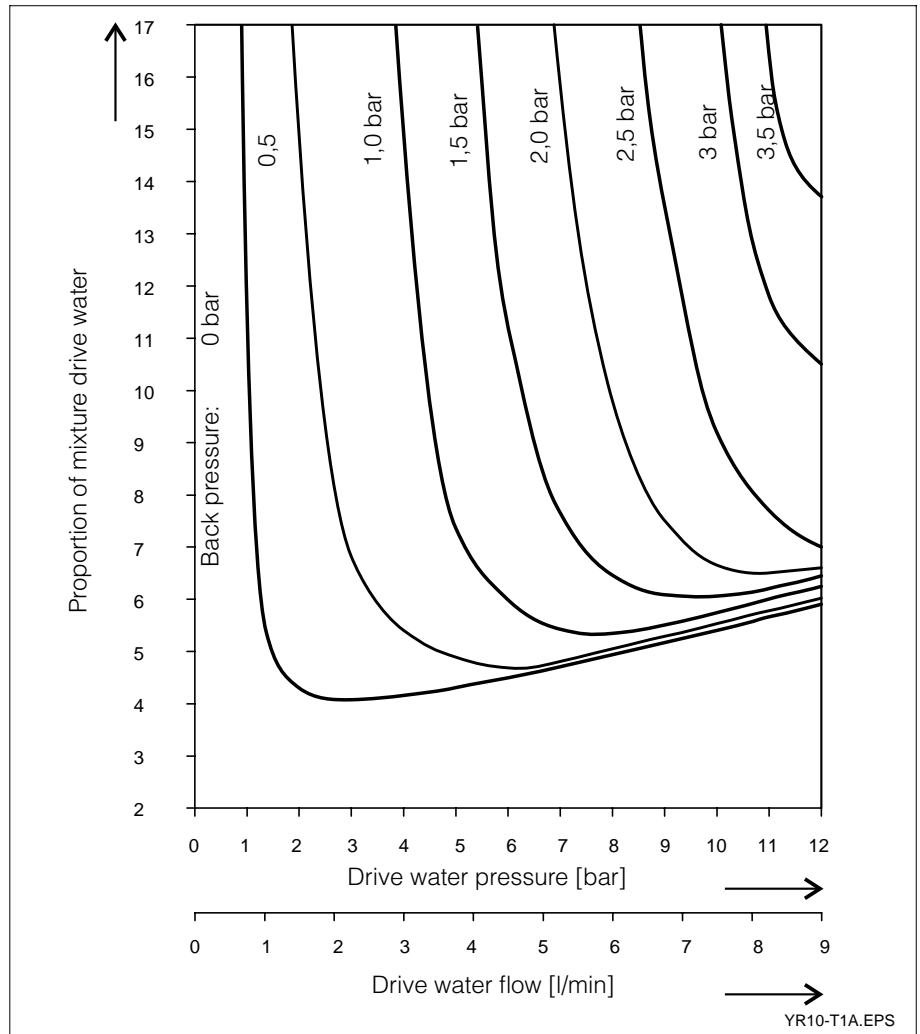
- ⑤ Spray head turbidity CUR 4
- ⑥ Spray head oxygen COR 3

Characteristic curve

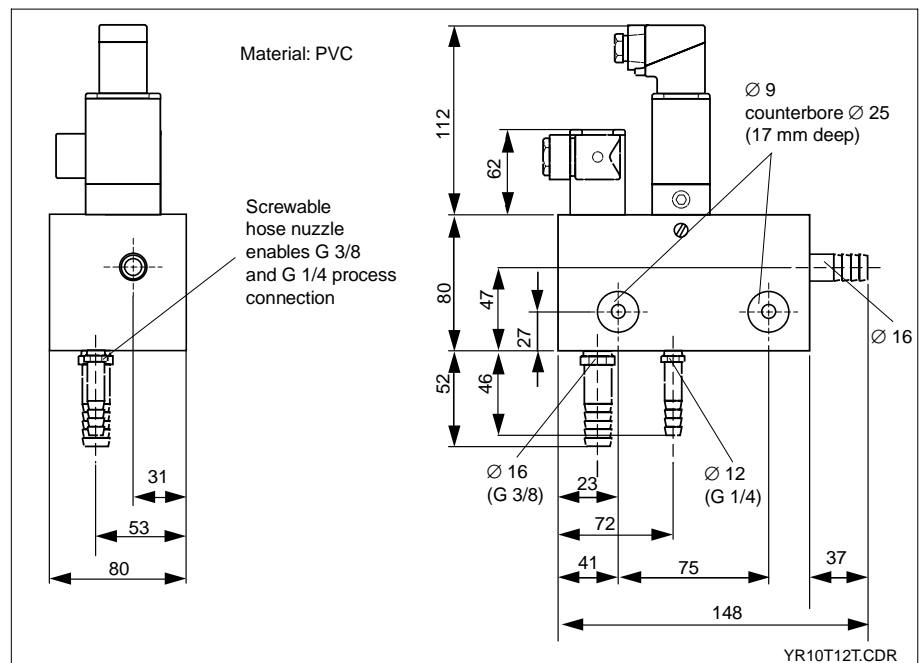
The characteristic curve shows the connection between drive water, back pressure and proportion of mixture in conjunction with an opened metering screw at the injector CYR 1

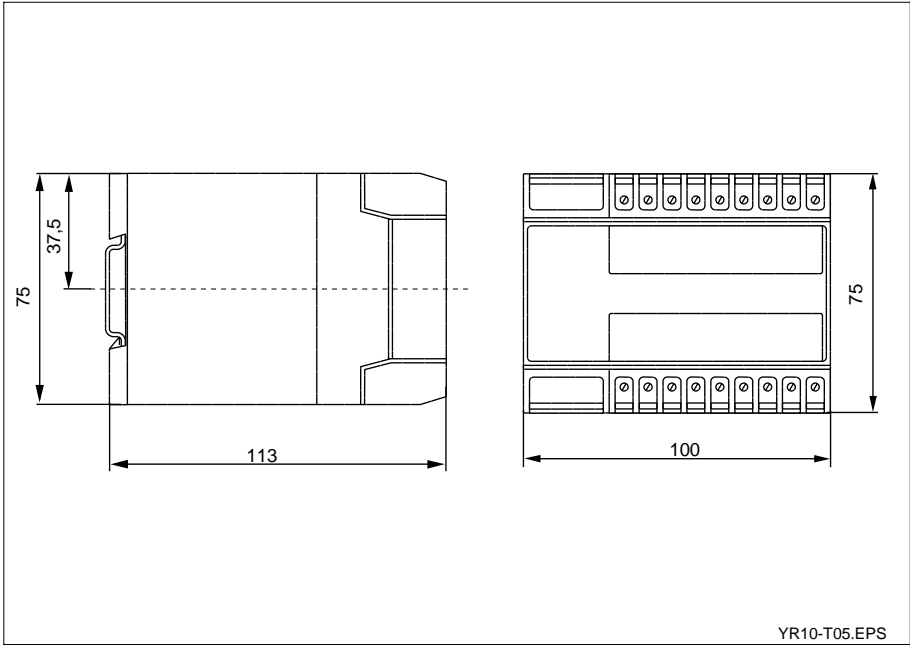
Example:

By the back pressure of 2 bar the drive water pressure of 8 bar is necessary to adjust a ratio of mixture: Drive water-cle-
aner 10:1 (by opened metering screw).



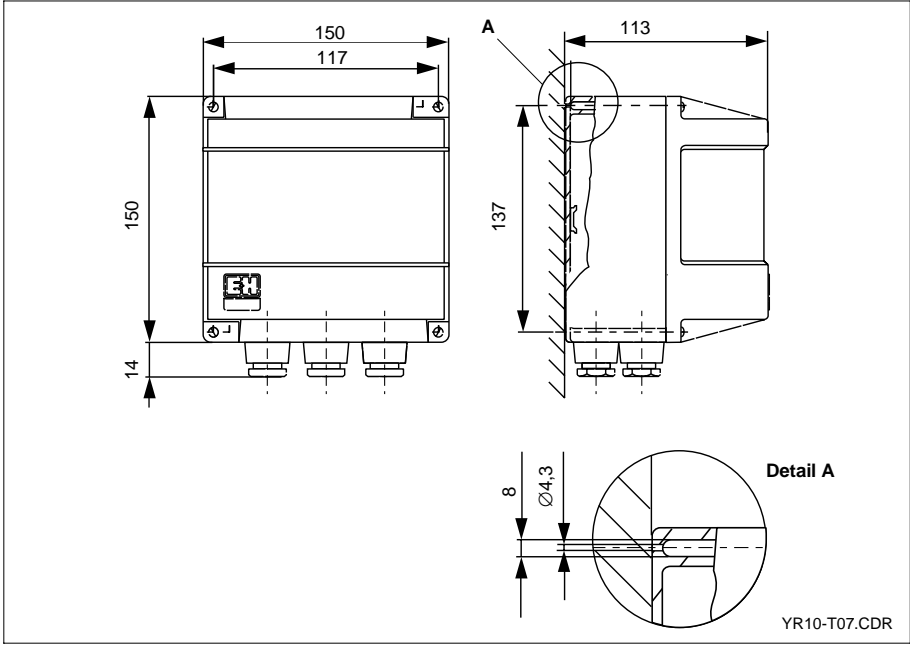
Dimensions





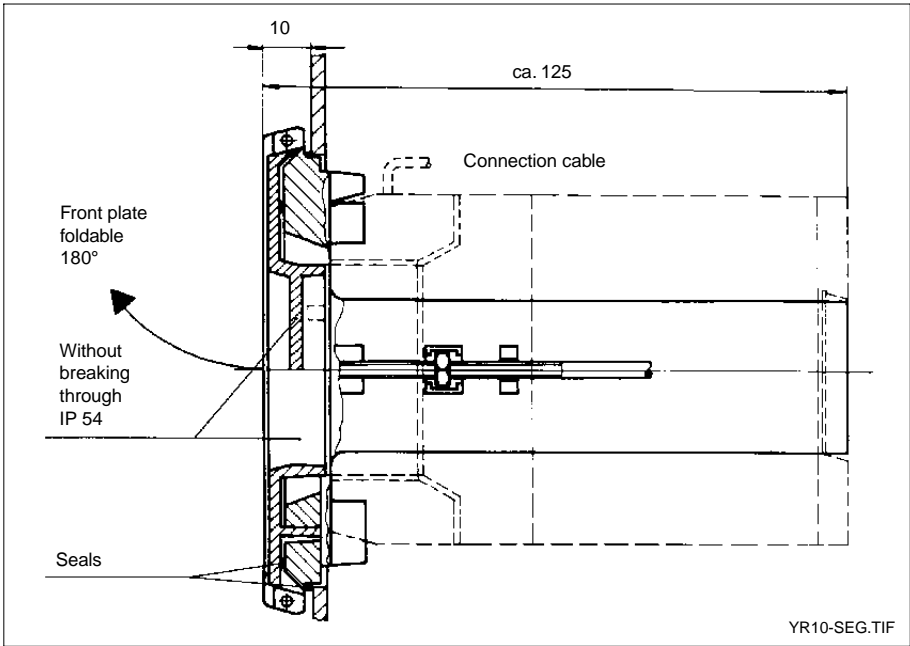
Programme sequencer
CYR 20

YR10-T05.EPS



Protective housing IP 55
for programme sequencer
(do not expose to direct
solar radiation).

YR10-T07.CDR



Panel mounting frame
SEG

Mounting cut-out
120 x 92 mm

YR10-SEG.TIF

Technical data

General data	Manufacturer	Endress+Hauser GmbH+Co.
	Designation	Chemoclean® CYR 10 / CYR 20
Programme sequencer CYR 20		
Electrical connection	Power supply	230 / 110 V AC +10 / -15%, 24 V DC
	Contact rating	230 V , 3 A , 100 VA
	Relay contacts, potential-free:	
	Injector valves	2 make contacts
	Hold contact to external device	2 make contacts
	CPA 463-R operation	1 changeover contact
	Contact inputs:	
	Start extern	make contact
Stop extern	make contact	
Clear extern	make contact	
Terminal blocks	2 x 9 terminals, removable	
Conductor cross section	1 x 2,5 mm ² or 2 x 1,5 mm ²	
Mounting	Installation terminal blocks	top hat rail EN 50022
	Housing	Protective housing SGH (IP 55) or panel mounting frame SEG (IP 54)
Cleaning programme	Water rinse time, adjustable	1 ... 60 seconds
	Cleaning time, adjustable	1 ... 60 seconds
	Second rinse time, adjustable	1 ... 60 seconds
	Cleaning cycle, adjustable	0.2 ... 99 hours
	Weekly programme (real time, adjustable)	12 times per day, adjustable per day of the week
	Hold continuation time	10 seconds
Operating data	Operating temperature	0 ... 50 °C
	Limit temperature	- 20 ... 60 °C
Process connection	Injector CYR 10 / CYR Z	
	Cleaning agent connection	Pressure hose bush D 12 (G 1/4)
	Cleaning output connection	Pressure hose bush D 16 (G 3/4)
	Drive water connection	Pressure hose bush D 16 (G 3/8)
	Drive water flow	min. 2 l/min max. 10 l/min
	Drive water pressure	2 ... 12 bar
	Medium counterpressure	max. 3 bar
	Suction height cleaning agent	max. 3 m
	Mixture ratio, adjustable by metering screw and drive water pressure	1:4 ... 1:17
	Compressed air supply for CYR 10Z-E12	3... 6 bar
Explosion protection CYR 10Z-E12	EEx ia IIC T6	
Material	Injector	PVC
Operating data	Temperature	max. 30 °C

Subject to modifications

How to order

Injector CYR 10	
Version A Non-Ex	
Power supply 0 230 V / 50 Hz 1 110 V 50 Hz 8 24 V DC	
CYR 10- <input type="text"/> <input type="text"/>	⇐ complete order code

Injector CYR 10Z	
Version D08 Ex (d) version (power supply 24 V DC) E 12 Ex (i) version for CPM 152 (power supply 12 V DC)	
CYR 10- <input type="text"/>	⇐ complete order code

Programme sequencer CYR 20	
Version 0 230 V / 50 H 1 110 V / 50 Hz 8 24 V DC	
CYR 10- <input type="text"/>	⇐ complete order code

Accessories

The range of special accessories for the Chemoclean spray cleaning system available from Endress+Hauser includes:

- Protective housing SGH (IP 55)
Order No. 50003264
- Panel mounting frame SEG (IP54)
Order No. 50005143
- Spray heads for various assemblies,
e.g. CPA 111, CPA 140, CPA 240,
CPA 250, CYA 611 etc.

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Endress + Hauser
Nothing beats know-how

