GRUNDFOS ALLDOS

Sprinkling Systems with 1 to 6 Nozzles 515-321, -3211, -322, -3221, -323, -3231, -324, -3241, -325, -3251, -326, -3261

Installation Manual

Read this information completely and keep it!

No warranty in case of damage caused by incorrect operation.

Imprint

Sprinkling Systems with 1 to 6 Nozzles
515-321, -3211, -322, -3221,-323, -3231, -324, -3241, -325, -3251, -326, -3261

Installation Manual
Version 2.0

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Assembly Information

NOTE ***Please fill in this form after commissioning. This allows easy maintenance for you and your GRUNDFOS Alldos service partner.***

Operating authority:	
GRUNDFOS Alldos customer no.:	
Order no.:	
Order no. of the device:	
Serial no. of the device:	
Date of commissioning:	
Location of the device:	
Used for:	

Assembly Sketch

Contents

1 General

1.1 General Information

This document contains all information important for users of the described device:

- ❏ Technical data
- ❏ Instructions on installation
- ❏ Safety information

Should you require further information, or should particular problems occur which are not handled in sufficient depth in this Manual, please contact GRUNDFOS Alldos directly for the required information.

1.2 Using this Document

- ❏ Descriptions are written in normal continuous text.
- ❏ Lists are indicated by squares (❏), subdivisions by dashes (-).
- ❏ Steps requiring operations are identified by bold dots (●), subdivisions by smaller dots (•).
- ❏ Cross-references are indicated by *italic letters* and an arrow (➜).
- ❏ The headings ***WARNING***, ***CAUTION*** and ***NOTE*** have the following meanings:

WARNING ***Danger of injuries and accidents!***

CAUTION ***Danger of malfunctioning or damage to the device!***

NOTE ***Exceptional feature.***

1.3 Guarantee

Warranty in accordance with our general terms of sale and delivery shall only be granted, if

- ❏ the device is used according to the information within this Installation Manual,
- ❏ the device is not incorrectly handled in any manner,
- ❏ repairs have only been carried out by authorized specialists,
- ❏ only original spare parts have been used during repairs.

2 Safety Instructions

2.1 Use of the Device

The sprinkling system 515 is part of the safety accessories for rooms with chlorine systems and with chlorine cylinders in the context of the possible applications described in this Manual.

WARNING ***Other applications are considered as non-approved, and are not permissible. ALLDOS Eichler GmbH cannot be held liable for any damage resulting from such use.***

2.2 Obligations of Owner

The owner agrees to only permit persons to work with the described device who

- ❏ are acquainted with the regulations concerning working safety and accident prevention,
- ❏ have been trained in use of the device,
- ❏ have read and understood the warning information and handling symbols.

The owner is responsible for

- ❏ arranging regular maintenance,
- ❏ ensuring that this Manual is kept in the immediate vicinity of the device and is always available for the operating personnel.

The owner is also responsible for ensuring that this Manual is kept in the immediate vicinity of the device and is always available for the operating personnel.

3 Technical Data

3.1 Function

In compliance with the directives 'BGV D5' of the German Accident Prevention & Insurance Association, chlorine gas storage rooms have to be equipped with efficient sprinkling systems to precipitate the leaking chlorine gas.

If a sprinkling system should work effectively, it must generate a misty water screen which covers the hole room . This water screen is produced by spray nozzles with a spray angle of 120° and with mean drop size of less than 0.8 mm.

The number of nozzles necessary and their arrangement depend on the size of the room and the water quantity per nozzle.
The estimated water quantity needed is about 2000 litres of water per hour and room in general.

➜ ***see chap. 4.1!*** (Determination of the number of nozzles necessary)

3.2 Variants

Sprinkling systems with solenoid valve, 230 V, 50 Hz

Order-No.	*Description*
515-321	system with 1 nozzle
515-322	system with 2 nozzles
515-323	system with 3 nozzles
515-324	system with 4 nozzles
515-325	system with 5 nozzles
515-326	system with 6 nozzles

Sprinkling systems with solenoid valve, 110 V, 50 Hz

Order-No.	*Description*
515-3211	system with 1 nozzle
515-3221	system with 2 nozzles
515-3231	system with 3 nozzles
515-3241	system with 4 nozzles
515-3251	system with 5 nozzles
515-3261	system with 6 nozzles

NOTE

Depending on the layout of the room and on the arrangement of the chlorine installation additional parts of the pipework such as PVC pipe, T-pieces or ells can be needed.

If necessary send the sketches of the room to GRUNDFOS Alldos in order to get support for planning!

4 Installation

4.1 Determination of the Necessary Number of Nozzles

NOTE

The water sprinkling system can only work with an overpressure (at the nozzle) of 2 bar at least and of about 6 bar at the most.

The greatest sprinkled area can be reached with an overpressure of 3 bar.

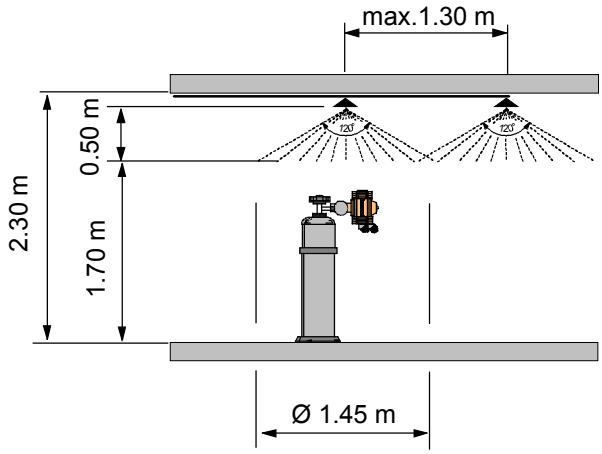
Normally one nozzle is sufficient for a room size of 2 m² . The water quantity diminishes at the rim of the spraying cone.

The following rough estimations for the installation apply to the case of chlorine precipitation and to an overpressure at the nozzle of 3 bar.

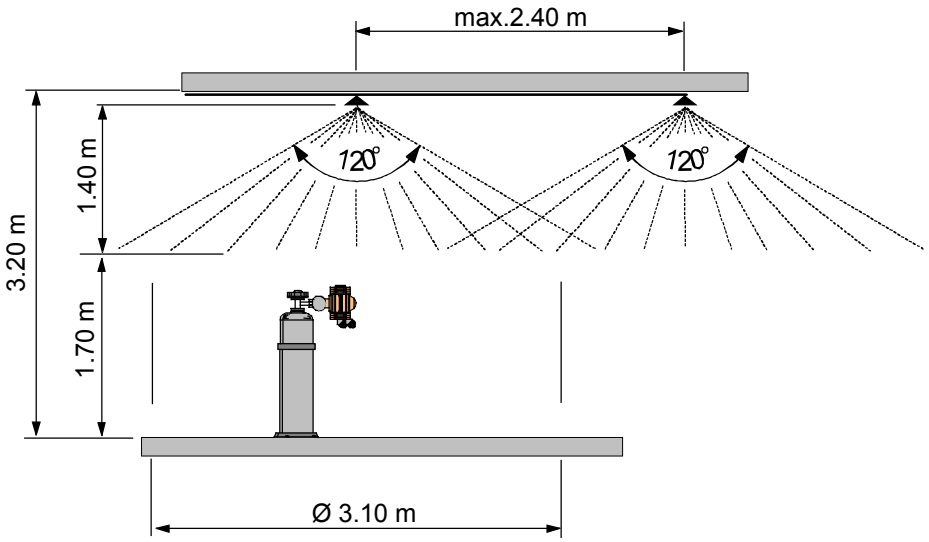
Area that can be sprinkled with one nozzle:

Based on a maximum installation height of 1.7 m for the components of the chlorine system, one nozzle ...

- ❏ can fully sprinkle a circular area of about 1.6 m² with fine water drops, if the height of the room is about 2.3 m.



❏ can fully sprinkle a circuit area of about 7.5 m² with fine water drops, if the height of the room is about 3.2 m.



NOTE ***If the overpressure at the nozzle is less than 3 bar the sprinkled area will be smaller.***

Example for determining the number of the nozzles

Conditions

❏ Overpressure at the nozzle of 3 bar

❏ Size of the chlorine gas room: area 3 m x 4 m, height 2.3 m

Proposal for installation

● Install 2 lines of 3 nozzles (if necessary arranged alternately)
  - distance between the nozzles: approx. 1.3 m
  - distance to the wall: approx. 0.7 to 0.85 m.

NOTE ***Depending on the surface of the room, a shifted arrangement of the nozzles can be favourable.***

4.2 Mounting

4.2.1 Installation of the Shut-off Valve with Extended Wall Transition Spindle

NOTE ***The spindle can be shortened later by sawing off and refixing with the split pin.***

Shortening of the spindle

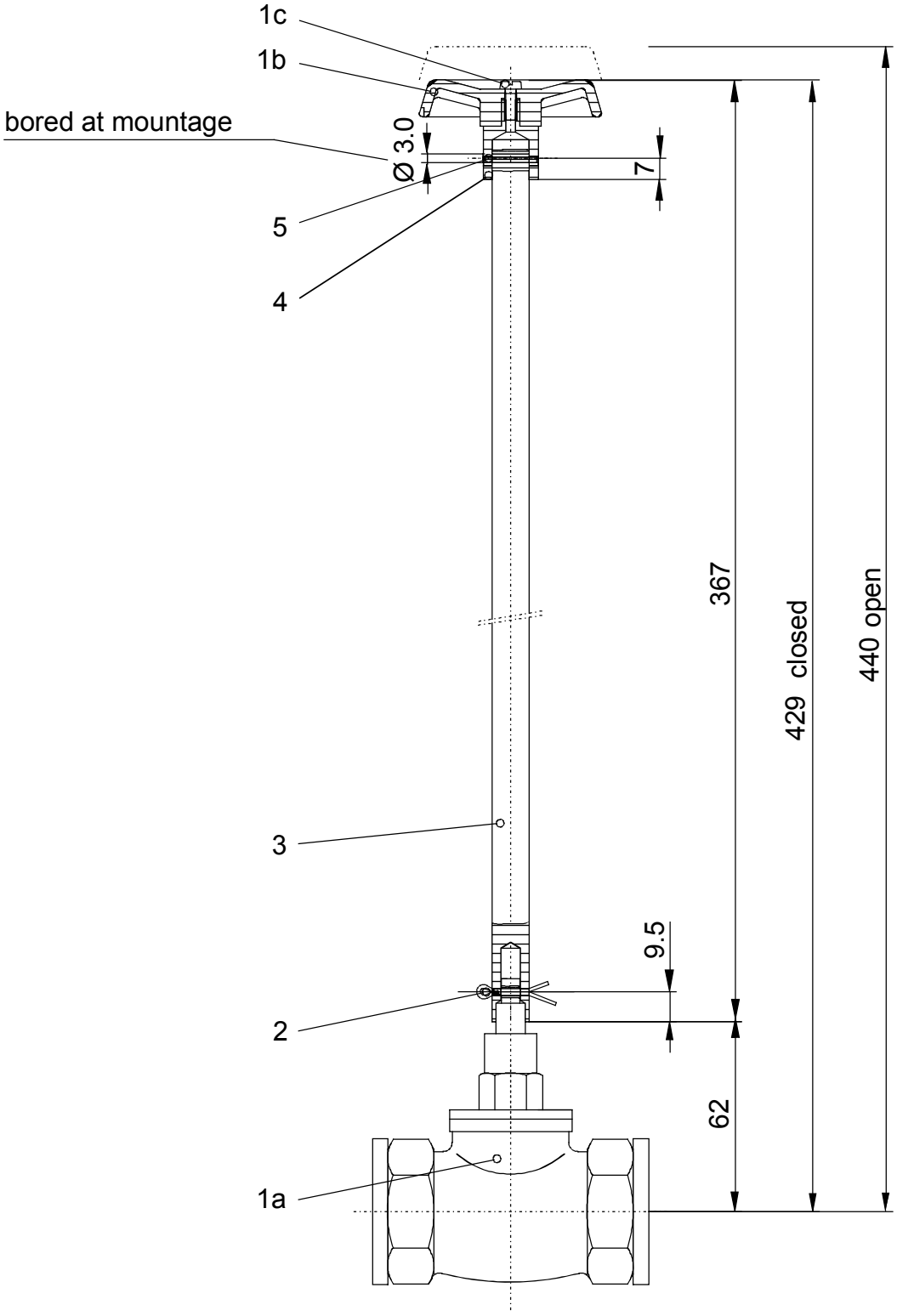
- Remove the split pin (2).
- Pull off the spindle (3) from the shut-off valve (1a).
- Knock out the clampling sleeve (5) from the spindle adapter (4).
- Pull off the spindle adapter (4) with the handwheel (1b) from the spindle (3).
- Shorten the spindle (3) at the side without internal bore hole.

NOTE ***When the spindle has to be shortend, take care that the split pin (2) and the spindle adapter (4) do not disappear within the wall bore hole!***

Mounting the wall transition spindle and the shut-off valve

- Deburr the sharp edges which have been formed during shortening.
- Pin up again the spindle adapter (4) to the spindle (3) .
- Use a drill of 3 mm to bore a hole through the bore hole of the spindle adapter (4) into the spindle (3).
- Knock in the clampling sleeve (5).
- Reset the spindle (3) to the shut-off valve (1a). Thereby pay attention to the four-edge position!
- Lock the connection of spindle (3) and shut-off valve (1a) with the split (2).

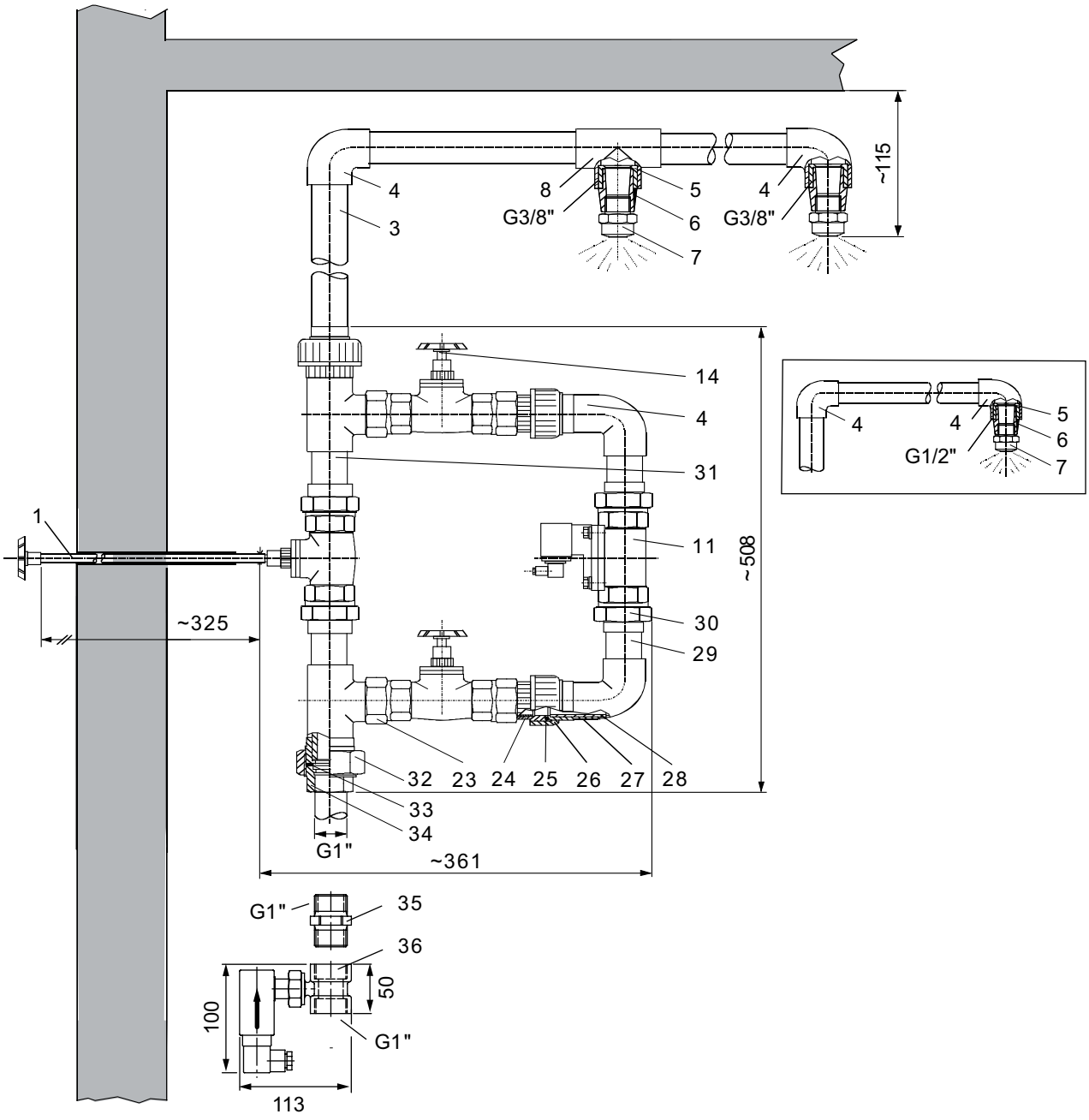
Shut-off valve with extended wall transition spindle



4.2.2 Installation of a Sprinkling System

Example for the mounting of systems with 1 to 6 spray nozzles (515-321...-326, 515-3211...3261)

➜ ***For the denomination of the item numbers see chap. 5!***
(List of parts)



NOTE

For better understanding the drawing shows the bypass with the manual shut-off valves (14) and the solenoid valve (11) vertically installed to the wall .

For all practical purposes the bypass is installed parallel with the wall!

- ❏ By means of the extended wall transition spindle of the shut-off valve (1) the sprinkling system can be manually operated from outside of the chlorine gas room.
- ❏ The solenoid valve (11) couples the sprinkling system to a chlorine gas warning device with a sensor which is installed in the chlorine gas room/ store room for chlorine cylinders.
- ❏ For the supply with pure water (34) please take into account

  that the spray nozzles work with the highest efficiency if the overpressure at every nozzle amounts to 3 bar at a w ater flow of 2 m^3 per hour.
- ❏ The sprinkled area is nearly circular.

NOTE

The parts belonging to item no. 23 (reducing pipe nipple) and 30 (socket pipe nipple) are sealed with PTFE tape. PVC parts are glued together with glue of PVC (e.g. TANGIT).

5 List of Parts

The following items and part numbers refer to the schematic drawing ***in chap. 4.2***.

Item	Part-No.	Description	Number for 1 nozzle	Number for 2 nozzles	Number for 3 nozzles	Number for 4 nozzles	Number for 5 nozzles	Number for 6 nozzles
1	12.326-410	water shut-off valve with extended spindle	1	1	1	1	1	1
3	12.1611-41P	pipe DN 25 x 5000	1	1	1	1	1	2
4	53.051-32	elbow 90°	4	4	4	4	4	4
5	53.183-32-20	reducing bush, short pattern	-	2	3	4	5	6
5	53.183-32-25	reducing bush, short pattern	1	2	3	4	5	6
6	53.396-20-3/8	reducing nipple	-	2	3	4	5	6
6	53.396-25-1/2	reducing nipple	1	2	3	4	5	6
7	12.6989-9	nozzle 9l/min	-	-	-	4	5	6
7	12.6989-15	nozzle 15l/min	-	2	3	-	-	-
7	12.185	nozzle 30l/min	1	2	3	4	5	6
8	53.054-32	"T" piece 90°	2	3	4	5	6	7
11	45.10245-1	solenoid valve 230V	1	1	1	1	1	1
11	45.10248-1	Elektro-Magnetventil 110V	1	1	1	1	1	1
14	53.204-1	manual shut-off valve	2	2	2	2	2	2
16	48.043-32	Goema support clip	3	5	7	9	11	13
17	48.033.1	dowel SX 8	3	5	7	9	11	13
18	50.380	flat headed screw	3	5	7	9	11	13
19	53.628-1	pipe bracket	3	3	3	3	3	3
20	48.031.1	dowel SX 10	3	3	3	3	3	3
21	50.233	multi-stage screw	3	3	3	3	3	3
23	53.095-32-1	adaptor nipple	4	4	4	4	4	4
24	53.057-32	union bush	3	3	3	3	3	3
25	52.153-1	o-ring	3	3	3	3	3	3
26	53.058-32	union nut	3	3	3	3	3	3
27	53.056-32	union end	4	4	4	4	4	4
28	14.569	fixing pipe DN 25 x 44	4	4	4	4	4	4
29	14.569-80	fixing pipe DN 25 x 80	2	2	2	2	2	2
30	53.088-1-32	socket nipple	4	4	4	4	4	4
31	14.569-83	fixing pipe DN 25 x 83	2	2	2	2	2	2
32	53.120-32	union nut	1	1	1	1	1	1
33	54.065	flat gasket	1	1	1	1	1	1
34	53.117-32	union end	1	1	1	1	1	1

Please order separately:

Flow detector complete, Part-No. 515-3200, consisting of :

35	53.356-1	double nipple G1"	1	1	1	1	1	1
36	45.10315-1	flow detector	1	1	1	1	1	1