

Instruction manual
for
high purity gas pigtails
200 bar / 300 bar



Contents

Contents.....	2
1. Preface	3
1.1 Overview.....	3
1.2 General.....	3
1.3 Intended use	4
1.4 Personnel requirements.....	4
2. For your safety.....	5
2.1 Overview.....	5
2.2 Symbols used	5
2.3 Essential safety information.....	5
3. Description.....	7
3.1 Overview of pigtailed.....	7
3.2 Technical data	7
4. Installation	10
4.1 Fitting the pigtail.....	10
4.2 Changing the cylinder.....	11
5. Maintenance, cleaning and repairs.....	11
5.1 Regular maintenance work and visual inspections	11

1. Preface

1.1 Overview

Contents

In this chapter you will find

- general information on the instruction manual,
- the designated applications for the pigtail and
- the manufacturer's requirements in relation to the operating personnel.

1.2 General

Validity

These instructions are valid for pure gas pigtails for 200 bar and 300 bar.

Manufacturer

Spectron Gas Control Systems GmbH
Fritz-Klatte-Straße 8
D-65933 Frankfurt
Deutschland / Germany
Telephone: +49 69 38016-0
Fax: +49 69 38016-200
Email: info@spectron.de
Internet: www.spectron.de

Publication date

November 2011

Retention and completeness

- This instruction manual forms part of the pigtails and must be kept with the equipment at all times and made available to the relevant authorised persons.
- Under no circumstances should chapters be removed from these instruction manuals. If the instruction manual is lost or if any chapters are missing – in particular the "For your safety" chapter – these must be replaced without delay.

Copyright

This documentation contains copyright-protected information. It must not be photocopied, reproduced, translated or copied onto data carriers, either in full or in part, without prior authorisation. All rights reserved.

1. Preface

1.3 Intended use

Updates

No update service is provided in relation to this documentation by the company Spectron Gas Control Systems GmbH.

Changes to this documentation can be made without prior notification.

Proper use

The pigtail is designed for connection of a gas cylinder to Spectron BM and BE series pressure control panels.

3 windings to allow connection of cylinders of different heights.

The manual cylinder connector ensures easy installation and cylinder change without the use of tools.

Foreseeable misuse

The following operating conditions are deemed to constitute misuse:

- Operation outside of the permissible technical limit values.
- The non-observance of the legal regulations and guidelines in force.

1.4 Personnel requirements

Definition of an authorised person

Authorised personnel are defined as persons with technical qualification and who have received instruction on the use of the overall system and the associated risks – pressurised gas cylinder – gas type – gas cylinder valve – and have successfully completed training on "the supply of pressurised gases," in particular combustible, toxic and hazardous gases and the dangers involved.

Tasks of the operating personnel

The operating personnel must detect errors and faults and – if possible and permitted – correct them.

Requirements for operating personnel

To be able to complete the tasks, the operating personnel must meet the following requirements:

- That person is required to have read and understood these instruction manuals in full.

2. For your safety

2.1 Overview

Contents

In this chapter you will find

- an explanation of the symbols used,
- basic information on safe handling.



Note!

The safety information given below is to be regarded as supplementary information to the relevant national accident prevention regulations and guidelines in force. All relevant accident prevention regulations and guidelines must be observed under all circumstances.

2.2 Symbols used



Danger!

This symbol indicates personal safety hazards to life and limb. Potentially fatal hazards are specifically indicated by the phrase "**Danger of death**".

2.3 Essential safety information

Various laws, ordinances, regulations and guidelines governing the handling of pressurised gases apply and must be observed depending on the type of gas involved:

- GPSG Equipment and product safety law with ordinances
- BGV A1 German trade association basic accident prevention regulations
- BGR 104 German trade association rules on explosion protection
- BGR 500 2.26 German trade association rules on welding, cutting and related work procedures
- BGR 500 2.31 German trade association rules for working on gas lines
- BGR 500 2.32 German trade association rules for operation of oxygen systems
- BGR 500 2.33 German trade association rules for the operation of gas handling systems
- TRG 280 Technical regulations for pressurised gases
- TRR 100 Technical regulations for pipelines
- TRGS 526 Technical regulations for hazardous substances in laboratories
- Pressure Equipment Directive 97/23/EC
- Safety data sheets in accordance with TRGS 220

2. For your safety



Danger!

It is essential to follow the safety information given below to avoid dangers to life and limb:

Possible hazard	Measures to avoid
Danger of death! Explanation: If oxygen comes into contact with oil or grease, there is a risk of fire due to a chemical reaction.	Keep all parts coming into contact with oxygen free of oil and grease.
Danger of death! Explanation: Gas escaping into the ambient air can ignite; there is a risk of fire and explosion.	Smoking and open flames are strictly prohibited in the surrounding area!
Danger of death! Explanation: Unauthorised modifications can damage the pig-tails so that they no longer function as intended. There is a risk of malfunctions, overdosing, fire or damage to the system gas cylinder.	No modification or conversion of the pigtails is permissible without obtaining the prior approval of the manufacturer.
Danger of death! Explanation: The use of pigtails which are not suitable for the gas type and pressure range may cause a reaction leading to a fire.	The pigtails used must be appropriate for the respective gas and the pressure ranges involved. If you are uncertain whether a pigtail is suitable for your application, please contact our product consultant (see reverse for telephone/fax number).
Explanation: If the pigtail is used at ambient temperatures outside the permissible range, there is a risk of malfunctions, over dosage, fire or damage to the system.	Do not use in ambient temperatures below - 30 °C and over +60 °C.
Explanation: If dirt particles penetrate the pigtails, there is a risk of malfunctions and damage.	It must be ensured that particles such as rust or shavings cannot penetrate the pigtails. Avoid heavy ambient contamination and corrosive particles.
Explanation: Gas may escape in an uncontrolled manner if connection surfaces or gaskets on the cylinder connection are damaged or missing.	Check connection surfaces for damage before fitting the pigtail. Do not fit the pigtail if connection surfaces are damaged or if gaskets are missing.

3. Description

3.1 Overview of pigtails



Note!

Spectron pigtails are high-quality products.

They are safe to operate and have a long service life.

However, the selection of the right model and correct installation are preconditions for operational reliability.

Illustrations of the pigtails



200 bar Flachdichtung



200 bar NPT



200 bar O-Ring



300 bar O-Ring

3.2 Technical data

Data	Value
Pre-pressure P1	max.200 bar/ max.300 bar
Outlet	Compression fitting 4mm/6mm ES
Inlet	Manual connector nut with O-ring in acc. with DIN 477 Part 1- 200bar/ Manual connector nut with O-ring in acc. with DIN 477 Part 5- 300bar Flat gasket NPT
Material	Stainless steel 1.4571 in acc. with DIN 17440 O-ring and flat gasket depending on gas type Manual connector nut, brass
Weight	approx. 1kg
Medium	non-corrosive pure / special gases up to quality 6.0
Operating temperature	-30 °C to +60 °C

3. Description

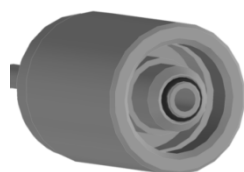
Labelling



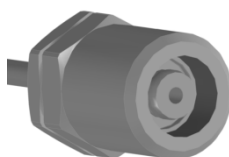
Note!

The pigtail is packed in a PE bag and labelled with the part number.

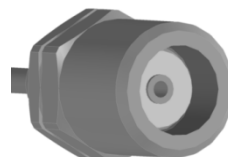
In addition, an identification code in accordance with DIN 477 is laser-engraved on the manual connector nut.



30



54



11

Delivery range 200bar

No.:	Connection as per DIN 477	Gas type	Description	Part no. pigtail	Part no. spare O-ring	Part no. spare gasket
1	W 21.8 x 1/14" LH	Flammable gases	SR-200-DIN 1	71833730	16205800	
5	W 1" LH	Toxic, flammable gases	SR-200-DIN 5	71833737		71702447
6	W 21.8 x 1/14"	Non flammable gases	SR-200-DIN 6	71833731	16205800	
6	W 21.8 x 1/14"	Ammonia	SR-200-DIN 6	71833739		71702445
7	G 5/8" F	Sulphur dioxide	SR-200-DIN 7	71833740		71702445
8	W 1"	Toxic, non-flammable gases	SR-200-DIN 8	71833738		71702447
9	G 3/4"	Oxygen	SR-200-DIN 9	71833732	0 329479	
10	W 24,32 x 1/14"	Nitrogen	SR-200-DIN 10	71833733	0 329479	
11	G 3/8"	Nitrous oxide	SR-200-DIN 11	71833734	77050365	
13	G 5/8" M	Compressed air	SR-200-DIN 13	71833735	0 329479	
14	M 19 x 1.5 LH	Test gases	SR-200-DIN 14	71833736	77053409	
		Euro (NPT 1/4" F) *	SR-200-NPT	71833728		



Note!

* Euro connection also requires an adapter between NPT 1/4 female and the country-specific gas cylinder connection.

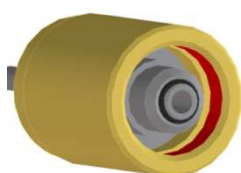
3. Description

Delivery range 300bar

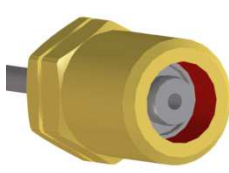
No.:	Connection as per ISO 5145	Gas type	Description	Part no. pig-tail	Part no. spare O-ring
30	W 30 x 2	Non flammable gases	SR-300-No. 30	71834015	77053412
31	W 30 x 2	Compressed air	SR-300-No. 31	71834014	77053412
32	W 30 x 2	Oxygen	SR-300-No. 32	71834016	77053412
38	W 30 x 2 LH	Flammable gases	SR-300-No. 38	71834017	77053412

Delivery range Italy

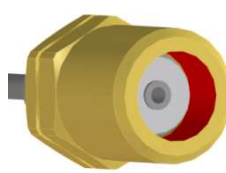
No.:	Connection as per UNI	Gas type	Description	Part no. pig-tail	Part no. spare gas-ket
4405 B	W 20 x 1/14" LH	H ₂ , CH ₄ , C ₃ H ₈ , CO	SR-200-UNI 4405 B	71833967	71831541
4406 B	W 21.8 x 1/14"	O ₂ , CO ₂ , NH ₃	SR-200-UNI 4406 B	71833739	71702445
4409 A	W 21.7 x 1/14"	N ₂	SR-200-UNI 4409 A	71833966	16207650
4410 B	W 30 x 1/14"	Compressed air	SR-200-UNI 4410 B	71833968	16207650
4412 A	W 24.5 x 1/14"	Ar, He	SR-200-UNI 4412 A	71833965	
9097 B	G 3/8" F	N ₂ O	SR-200-UNI 9097 B	71833969	71702448



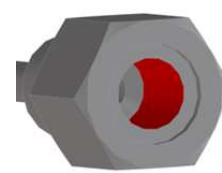
300bar O-ring



200bar O-ring



200bar flat gasket



NPT

4. Installation

4.1 Fitting the pigtail

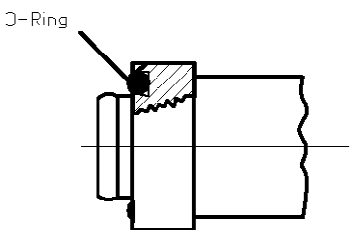
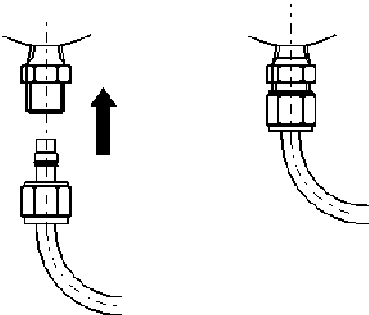


Note!

All pigtails are pressure- and leak-tested before leaving the factory.

Installation of the pigtail requires precise knowledge of the correct handling of pressurised gas containers and pure gas supply systems. Incorrect installation or unauthorised modification of the pigtail, the use of non-approved spare parts and auxiliary materials leads to the loss of all rights to claims against the manufacturer under guarantee or warranty.

The pigtail and tools must be kept free of oil and grease.

Step	Activity
1	Remove the pigtail from its packaging.
2	<p>Check that the O-ring of the manual connector is inserted in the groove of the connection or that the flat gasket is fitted.</p> 
3	<p>The compression fitting is pre-fitted at the factory. Push the connection into the threaded fitting on the control panel side as far as the stop and tighten the union nut by hand. Use a tool wrench to tighten the union nut gastight by turning it 1/4 turn.</p> 
4	<p>Secure the gas cylinder against falling over with the protective cap screwed on and a cylinder bracket. Remove the protective cap from the cylinder valve and align the cylinder valve with the pigtail by turning the cylinder. Where an O-ring is used for sealing, tighten the manual connector nut by hand. In the case of a flat gasket, use a wrench to tighten the manual connector nut.</p>
5	Purge as described in the operating instructions for the pressure control panel.
6	Carry out a helium leak test at full cylinder pressure.

4. Installation

4.2 Changing the cylinder

Step	Activity
1	Close the cylinder valve and relieve the pressure via the purge valve on the pressure control panel. Release the manual connector and screw the protective cap onto the cylinder valve. Before connecting up a full cylinder, check the O-ring for damage.



Note!

If a full cylinder is not connected up immediately, the connection must be closed off using the plastic plug provided.

Alternatively, metal plugs can be supplied.

5. Maintenance, cleaning and repairs

5.1 Regular maintenance work and visual inspections



Note!

Spectron pigtails are maintenance-free. However, they should be subjected to visual inspection for damage, leakage, firm attachment and corrosion by the manufacturer at intervals appropriate for the specific operating circumstances.



Danger!

Pigtails with visible damage must be taken out of operation immediately!

Safe and reliable operation can only be guaranteed if original spare parts are used.



Note!

The manufacturer accepts no liability for damage resulting from unauthorised modifications by the operator or third parties.

6.

Changing the cylinder	11	Personnel requirements	4
Installation.....	10	Proper use	4
Maintenance work.....	11	Safety information	5
Manufacturer.....	3	Technical data	7
Overview of pigtails.....	7	Visual inspections	11

Spectron Gas Control Systems GmbH

Fritz-Klatte-Straße 8

D-65933 Frankfurt

Deutschland / Germany

Telephone: +49 69 38016-0

Fax: +49 69 38016-200

Email: info@spectron.de

Internet: www.spectron.de