

OPERATING INSTRUCTIONS

QUICK-RELEASE COUPLING SYSTEMS

General instructions for industrial couplings, plug nipples and connection variants

IMPORTANT SAFETY NOTICE

Connect and disconnect in accordance with the product design and the product-specific requirements. As a general rule, single shut-off coupling systems must only be connected and disconnected when depressurized. For double shut-off versions expressly approved for this purpose, connecting and/or disconnecting under pressure may be permissible.

Document status

Characteristic	Information
Document	General Operating Instructions - Quick-Release Couplings
Edition	Version 01 · 15.10.2026
Language	English · Translation of the German original
Basis of applicability	RINNERT range of industrial couplings; individual technical values according to product data sheet

This documentation contains general technical information and instructions.
Product-specific technical requirements and approvals remain unaffected.

Table of Contents

Chapter	Content
1	General
2	Scope
3	Product Description and Operating Principle
4	Intended Use
5	Selection of the Coupling System
6	Safety Instructions
7	Installation
8	Assembly of Connections
9	Operation
10	Commissioning and Testing
11	Maintenance and Inspection
12	Troubleshooting
13	Storage and Transport
14	Disposal
15	Documentation and Operator Responsibility
Appendix A	Selection and Commissioning Checklist

1. General

Quick-release couplings are used for the fast, repeatable connection and disconnection of hose and pipe lines as well as for connecting tools, machines and other consuming devices. These general operating instructions describe the safe selection, assembly, installation, operation, testing, maintenance and disposal of the quick-release coupling systems distributed by Rinnert.

These instructions must be used together with the respective product data sheet. Where information differs, the more restrictive or product-specific limit values apply. Technical changes and changes to the product range are reserved.

SERVICE

For questions regarding selection, media compatibility or operating conditions: RINNERT GmbH & Co. KG, Ludwig-Erhard-Str. 6, 41564 Kaarst · +49 2131 40 30 00 · info@rinnert.de · www.rinnert.de

1.1 Target group

These instructions are intended for operators, planners, installers, maintenance personnel and operating personnel who, on the basis of their training, experience and instruction, are able to identify hazards associated with pressurized piping systems and take appropriate protective measures.

1.2 Signal words

Identification of safety instructions

Safety-related information in these operating instructions is highlighted by the signal word **WARNING**.

WARNING

Indicates a potentially hazardous situation. Failure to observe this warning may result in serious injury as well as property or environmental damage. Additional information and recommendations are highlighted separately in the text. They support safe, trouble-free operation and help protect the product.

2. Scope

These instructions are intended as a general RINNERT basis for industrial couplings and matching plug nipples. The RINNERT range includes quick-release coupling systems in different nominal sizes, materials, connection types and shut-off variants. Depending on the series, single shut-off, double shut-off and, in some cases, free-flow versions are available.

Typical connection types include female thread, male thread, hose connection and compression fitting. Not every combination is available in every nominal size, material or shut-off type.

PRODUCT-SPECIFIC LIMITS

Maximum operating pressure, permissible temperature range, seal material, specific media approval, thread standard and dimensions are not defined on a general basis. The data sheet or product description for the specific article number used is authoritative.

2.1 Applications not covered

Special couplings for specific gases, fuel gases, oxygen, aggressive chemicals, food, pharmaceuticals, high pressure or other specially regulated applications may only be used if the specific version is expressly specified and approved for that purpose. These general instructions alone do not constitute such approval.

3. Product Description and Operating Principle

A quick-release coupling system consists of a coupling and a compatible plug nipple. The mechanical locking mechanism holds both components together; depending on the design, integrated valves open or close during connection or disconnection.

Version	Function when disconnected	Typical note
Single shut-off	Valve in the coupling closes; plug nipple remains open.	Residual medium may escape from the plug nipple/line side.
Double shut-off	Valves in the coupling and plug nipple close.	Small leakage quantities may nevertheless occur due to the design.
Free flow	No shut-off valve function.	Safely stop the media flow before disconnecting and depressurize the line.

3.1 Compatibility

Only use couplings and plug nipples whose plug profile, nominal size, locking geometry and functional type are compatible. Parts that look similar are not automatically compatible. Do not force components together or modify them mechanically.

3.2 Materials

Depending on the series, the RINNERT range includes brass, nickel-plated versions and stainless steel, among other materials. Select the material according to the medium, environment and required corrosion resistance. The seal material must also be suitable for the medium and temperature.

4. Intended Use

- Connecting suitable hose and pipe lines as well as connections to machines, tools and consuming devices.
- Operation exclusively within the product-specific permissible pressure, temperature and media limits.
- Use exclusively with compatible couplings and plug nipples and with professionally executed connections.
- As a general rule, connect and disconnect single shut-off coupling systems only when depressurized. For double shut-off coupling systems, observe the product-specific requirements for connecting and disconnecting.
- Operation, assembly and maintenance only by suitable and instructed persons.

4.1 Foreseeable misuse

- Exceeding the permissible operating pressure or temperature range.
- Use with media that are not approved or are incompatible with the materials.
- Connecting incompatible plug profiles or nominal sizes.
- Disconnecting under pressure without a safety function expressly designed for this purpose.
- Use of damaged, corroded, contaminated or leaking components.
- Exposure to impermissible tensile, transverse, bending or vibration forces.
- Unauthorized machining, drilling, grinding, deformation or other modification of coupling components.
- Where specified for the product, observe the permissible tightening torque.

5. Selection of the Coupling System

Selection must be made for the specific application. Universal suitability cannot be inferred from the product designation or nominal size alone.

Selection criterion	Clarify before selection
Medium	Type, concentration, purity, hazardous properties, chemical compatibility
Pressure	Operating pressure, pressure peaks, pressure surges, vacuum
Temperature	Medium and ambient temperature, temperature changes
Material	Corrosion, galvanic effects, cleaning media, environment
Seal	Resistance to medium and temperature
Connection	Thread, hose dimension, pipe/compression connection, securing
Function	Single/double shut-off or free flow
Environment	Vibration, dirt, moisture, mechanical load

APPROVAL REQUIRED

If the medium, pressure, temperature, seal or material are not clearly specified in the product documentation, obtain technical clarification before use. Do not infer suitability from similar articles.

6. Safety Instructions

WARNING – PRESSURE ENERGY

Pressurized lines can cause uncontrolled movement of coupling components, plug nipples or hose ends and the release of medium when connections are loosened. Connect and disconnect single shut-off coupling systems only when depressurized. For double shut-off coupling systems, the product-specific requirements must be observed.

WARNING – HAZARDOUS MEDIA

Escaping media may be hot, cold, toxic, corrosive, flammable or otherwise hazardous. Define suitable personal protective equipment and measures to prevent release, ignition and environmental damage.

WARNING – SYSTEM FAILURE

Anlagen so auslegen, dass das Versagen einer Kupplung nicht zu unververtretbaren Personen-, Umwelt- oder Sachschäden führt. Bei sicherheitskritischen Anwendungen zusätzliche Schutzmaßnahmen vorsehen.

The operator must in particular ensure that:

- the system pressure does not exceed the permissible operating pressure of the weakest component;
- materials and seals are compatible with the medium;
- permissible operating and ambient temperatures are observed;
- coupling, plug nipple, hose and connection means are in proper condition;
- the operating instructions are available at the place of use and personnel have been instructed;
- no impermissible external forces or vibrations are introduced;
- leaks and spilled media are safely collected and properly handled.

7. Installation

Before initial commissioning, verify article identity, compatibility, material, seal, pressure range, temperature range and media compatibility. Lines and connections must be clean, free of chips and adequately sized.

- Position the coupling so that it can be reached safely and does not create crushing, tripping, heat, cold or entanglement hazards.
- For strongly vibrating tools or machines, provide a suitable flexible hose section for decoupling.
- Secure hoses against slipping off and observe minimum bend radii as well as the permissible pressure/temperature values of the hose.
- Do not use the coupling as a load-bearing component or stop.
- After assembly, check secure fastening, correct pairing, leak-tightness and function.

7.1 Direction of flow

For standard shut-off couplings, unless otherwise specified in the product-specific data sheet, a direction of flow from the coupling to the plug nipple is preferred. For special versions, the specified direction of flow must be observed.

8. Assembly of Connections

8.1 Threaded connections

Check thread type and size before assembly. Use only suitable sealing materials that are compatible with the medium. Sealing material must not enter the flow path. The tightening torque must be appropriate for the connection geometry and material; if no value is specified, no general torque may be derived from these instructions.

8.2 Hose barbs

Use only hoses with a suitable inside diameter and appropriate pressure/temperature approval. Push the hose fully onto the barb profile and secure it with a clamp, clip or crimp sleeve suitable for the application.

8.3 Compression and pipe connections

Observe the assembly sequence, pipe/hose dimensions and tightening specifications for the specific connection design. Cut pipes square, deburr them and install them free of stress.

NOTE

Thread and connection standards differ between product variants. Specifications such as DIN ISO 228-1, metric threads or other connection standards must only be used if they are documented for the specific article number.

9. Operation

9.1 Before each connection

- Check the coupling and plug nipple for damage, corrosion, contamination and deformation.
- Ensure compatibility of the two parts.
- Depressurize single shut-off coupling systems before connecting. For double shut-off coupling systems, observe the product-specific requirements for connecting.
- Keep the hazard area clear and wear the required protective equipment.

9.2 Connecting procedure

For common one-hand quick-release couplings, insert the plug nipple axially and straight into the coupling until it fully engages. Then pull gently to verify that the locking mechanism is securely closed. The locking sleeve must have reached its intended end position.

CHECKPOINT

After connecting, verify secure locking. If the system is pressurized only after connection, build up the pressure in a controlled manner. Check the connection for leakage and unusual noises. If any abnormality is detected, take the system out of service and, where this can be done safely, depressurize it.

9.3 Disconnecting procedure

- Depressurize single shut-off coupling systems before disconnecting. For double shut-off coupling systems, observe the product-specific requirements for disconnecting. Take stored pressure energy into account.
- Hold the plug nipple or connected line securely.
- Operate the locking mechanism according to the coupling design and release the connection in a controlled manner.
- Collect residual medium. For hazardous media, apply suitable protective and disposal measures.

9.4 Behavior according to shut-off type

System	After disconnection
Single shut-off	Coupling side closes; residual medium may escape from the open plug nipple/line side.
Double shut-off	Both sides close; slight design-related leakage is nevertheless possible.
Free flow	Both sides remain open; shut off the line beforehand, depressurize it and safely collect residual medium.

10. Commissioning and Testing

Before regular use, the assembled connection must be tested under safe conditions. The test must be appropriate to the hazard and the intended operating condition.

- Check the seating and locking of the coupling.
- Check all connections and the coupling for leak-tightness.
- Build up system pressure slowly and in a controlled manner.
- Never increase the test pressure above the maximum permissible operating pressure of the components used unless a separate, professionally defined test procedure exists.
- In the event of leakage, deformation, unusual noise or stiff operation, immediately take the system out of service and depressurize it.

11. Maintenance and Inspection

Quick-release couplings require little maintenance when correctly selected and properly operated. Inspection and replacement intervals must be defined by the operator based on frequency of use, medium, environment, pressure cycles, contamination and the consequences of possible failure.

11.1 Visual inspection

Inspect in a depressurized and, where possible, disconnected condition. Remove accessible contamination using a method suitable for the material and seal. Do not use aggressive cleaning agents without evidence of compatibility.

11.2 Immediate removal from service

- cracked, corroded, deformed or heavily worn components;
- damaged plug profile or locking element;
- leakage at the valve, coupling body, seal or connection;
- stiff, incomplete or insecure locking;
- other damage that could impair safe function.

11.3 Functional test

Connecting and disconnecting must be smooth and unambiguous. The connection must be leak-tight when coupled. For shut-off versions, the leak-tightness of the disconnected sides should also be assessed where this is safe and permissible for the medium.

11.4 Replacement and repair

Do not improvise repairs to safety-relevant components. Replace seals or individual parts only if suitable spare parts and an approved repair procedure are available for the specific series.

Otherwise, replace the coupling or plug nipple completely.

12. Troubleshooting

Fault	Possible cause	Action
Coupling does not engage	Coupling does not engage	Coupling does not engage
Incorrect plug profile, contamination,	Incorrect plug profile, contamination,	Incorrect plug profile, contamination,
damage, residual pressure	damage, residual pressure	damage, residual pressure
Depressurize; inspect/clean parts; check	Depressurize; inspect/clean parts; check	Depressurize; inspect/clean parts; check

13. Storage and Transport

- Store clean and dry, protected from aggressive chemicals and weather.
- Protect sealing and functional surfaces from dirt, chips and mechanical damage.
- Do not place heavy loads on couplings or plug nipples.
- After prolonged storage, carry out a visual and functional inspection before installation.

14. Disposal

At the end of their service life, dispose of couplings, plug nipples, seals and other individual parts properly and in an environmentally responsible manner in accordance with the material, media residues and the legal requirements applicable at the place of use. Parts contaminated with hazardous media must be treated before disposal in accordance with company and legal requirements.

15. Documentation and Operator Responsibility

For safety-relevant applications, the operator should document at least the article identity, installation date, medium, operating parameters, inspections, abnormalities and replacements. Risk assessment of the overall system and the definition of suitable inspection and maintenance intervals remain the responsibility of the operator.

Appendix A - Selection and Commissioning Checklist

- ☐ Article number and coupling series clearly identified
- ☐ Coupling and plug nipple compatible
- ☐ Medium approved / material and seal compatibility checked
- ☐ Operating pressure and pressure peaks within permissible values
- ☐ Operating and ambient temperature within permissible values
- ☐ Connection professionally assembled and secured against loosening
- ☐ No impermissible tensile, transverse or vibration loads
- ☐ Coupling fully locked
- ☐ Leak-tightness and functional test passed
- ☐ Operating instructions and data sheet available at the place of use