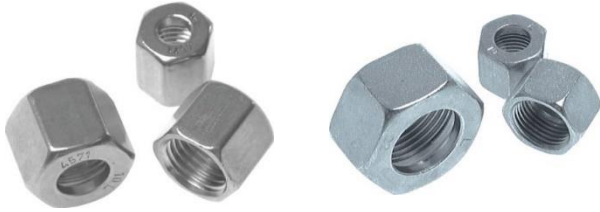


# UNL, CRL and RRL – series

Union nut, Cutting ring, Compression ring, Reinforcing rings



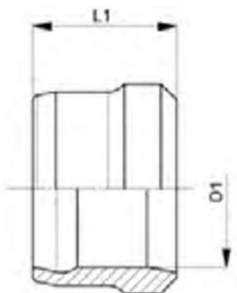
## Union nuts, DIN 3870

Steel, zinc plated	Stainless steel (cutting ring)	Stainless steel (compression ring)	Size of threaded connection	Tube diameter (mm)	Load class (DIN 2353)
UNL-E-04-LL	UNL-S-04-LL		M8 x 1	4	LL (very light)
UNL-E-05-LL			M10 x 1	5	LL (very light)
UNL-E-06-LL	UNL-S-06-LL		M10 x 1	6	LL (very light)
UNL-E-08-LL	UNL-S-08-LL		M12 x 1	8	LL (very light)
UNL-E-10-LL			M14 x 1	10	LL (very light)
UNL-E-12-LL			M16 x 1	12	LL (very light)
UNL-E-06-L	UNL-S-06-L	UNL-S-06-L-C	M12 x 1.5	6	L (light)
UNL-E-08-L	UNL-S-08-L	UNL-S-08-L-C	M14 x 1.5	8	L (light)
UNL-E-10-L	UNL-S-10-L	UNL-S-10-L-C	M16 x 1.5	10	L (light)
UNL-E-12-L	UNL-S-12-L	UNL-S-12-L-C	M18 x 1.5	12	L (light)
UNL-E-15-L	UNL-S-15-L	UNL-S-15-L-C	M22 x 1.5	15	L (light)
UNL-E-18-L	UNL-S-18-L	UNL-S-18-L-C	M26 x 1.5	18	L (light)
UNL-E-22-L	UNL-S-22-L	UNL-S-22-L-C	M30 x 2	22	L (light)
UNL-E-28-L	UNL-S-28-L	UNL-S-42-L-C	M36x2.0	28	L (light)
UNL-E-35-L	UNL-S-35-L		M45 x 2	35	L (light)
UNL-E-42-L	UNL-S-42-L		M52 x 2	42	L (light)
UNL-E-06-S	UNL-S-06-S	UNL-S-06-S-C	M14 x 1.5	6	S (heavy)
UNL-E-08-S	UNL-S-08-S	UNL-S-08-S-C	M16 x 1.5	8	S (heavy)
UNL-E-10-S	UNL-S-10-S	UNL-S-10-S-C	M18 x 1.5	10	S (heavy)
UNL-E-12-S	UNL-S-12-S	UNL-S-12-S-C	M20 x 1.5	12	S (heavy)
UNL-E-14-S	UNL-S-14-S	UNL-S-14-S-C	M22 x 1.5	14	S (heavy)
UNL-E-16-S	UNL-S-16-S	UNL-S-16-S-C	M24 x 1.5	16	S (heavy)
UNL-E-20-S	UNL-S-20-S	UNL-S-20-S-C	M30 x 2	20	S (heavy)
UNL-E-25-S	UNL-S-25-S	UNL-S-25-S-C	M36x2.0	25	S (heavy)
UNL-E-30-S	UNL-S-30-S	UNL-S-30-S-C	M42 x 2	30	S (heavy)
UNL-E-38-S	UNL-S-38-S	UNL-S-38-S-C	M52 x 2	38	S (heavy)



## Cutting rings / compression rings, DIN 3861

Steel, zinc plated	Steel, zinc plated, with seal	Stainless steel (cutting ring)	Stainless steel (compression ring)	Size of threaded connection	Tube diameter (mm)	Load class (DIN 2353)
CRL-E-04-LL		CRL-S-04-LL		M8 x 1	4	LL (very light)
CRL-E-05-LL				M10 x 1	5	LL (very light)
CRL-E-06-LL		CRL-S-06-LL		M10 x 1	6	LL (very light)
CRL-E-08-LL		CRL-S-08-LL		M12 x 1	8	LL (very light)
CRL-E-10-LL				M14 x 1	10	LL (very light)
CRL-E-12-LL				M16 x 1	12	LL (very light)
CRL-E-06-LS	CRL-E-06-LS-S	CRL-S-06-LS	CRL-S-06-LS-C	M12 x 1.5 / M14 x 1.5	6	L (light) / S (heavy)
CRL-E-08-LS	CRL-E-08-LS-S	CRL-S-08-LS	CRL-S-08-LS-C	M14 x 1.5 / M16 x 1.5	8	L (light) / S (heavy)
CRL-E-10-LS	CRL-E-10-LS-S	CRL-S-10-LS	CRL-S-10-LS-C	M16 x 1.5 / M18 x 1.5	10	L (light) / S (heavy)
CRL-E-12-LS	CRL-E-12-LS-S	CRL-S-12-LS	CRL-S-12-LS-C	M18 x 1.5 / M20 x 1.5	12	L (light) / S (heavy)
CRL-E-15-L	CRL-E-15-L-S	CRL-S-15-L	CRL-S-15-L-C	M22 x 1.5	15	L (light)
CRL-E-18-L	CRL-E-18-L-S	CRL-S-18-L	CRL-S-18-L-C	M26 x 1.5	18	L (light)
CRL-E-22-L	CRL-E-22-L-S	CRL-S-22-L	CRL-S-22-S-C	M30 x 2	22	L (light)
CRL-E-28-L	CRL-E-28-L-S	CRL-S-28-L		M36x2.0	28	L (light)
CRL-E-35-L	CRL-E-35-L-S	CRL-S-35-L		M45 x 2	35	L (light)
CRL-E-42-L	CRL-E-42-L-S	CRL-S-42-L		M52 x 2	42	L (light)
CRL-E-14-S	CRL-E-14-S-S	CRL-S-14-S	CRL-S-14-S-C	M22 x 1.5	14	S (heavy)
CRL-E-16-S	CRL-E-16-S-S	CRL-S-16-S	CRL-S-16-S-C	M24 x 1.5	16	S (heavy)
CRL-E-20-S	CRL-E-20-S-S	CRL-S-20-S	CRL-S-20-S-C	M30 x 2	20	S (heavy)
CRL-E-25-S	CRL-E-25-S-S	CRL-S-25-S	CRL-S-25-S-C	M36x2.0	25	S (heavy)
CRL-E-30-S	CRL-E-30-S-S	CRL-S-30-S		M42 x 2	30	S (heavy)
CRL-E-38-S	CRL-E-38-S-S	CRL-S-38-S		M52 x 2	38	S (heavy)



Reference	Tube diameter -D1 (mm)	L1 (mm)
CRL-S-06-L	6	9
CRL-S-08-L	8	9
CRL-S-10-L	10	10
CRL-S-12-L	12	10
CRL-S-15-L	15	10
CRL-S-22-L	22	10.5
CRL-S-28-L	28	10.5
CRL-S-35-L	35	13
CRL-S-42-L	42	13.5

### ENGLISH Zinc-plated steel type

**Materials:**  
Bodies: Zinc plated steel, any existing elastomer seal: NBR

**Temperature range:**  
-40°C to max. +120°C (with an elastomer seal: -35°C to max. +100°C)

### Stainless steel type and screw connection

**Materials:**  
Body: 1.4571, any existing elastomer seal: FKM

**Temperature range:**  
-60°C up to max. +400°C (with

### NEDERLANDS Type verzinkt staal

**Materialen:**  
Lichaam: Verzinkt staal of beschikbare elastomeerafdichting: NBR

**Temperatuurbereik:**  
-40 °C tot max. +120 °C (met elastomeerafdichting: -35 °C tot max. +100 °C)

### Type roestvrij staal en NC-klemring

**Materialen:**  
Lichaam: 1.4571, eventueel beschikbare elastomeerafdichting: FKM

### DEUTSCH Typ Stahl verzinkt

**Werkstoffe:**  
Körper: Stahl verzinkt, ggf. vorhandene Elastomerdichtung: NBR

**Temperatuurbereich:**  
-40°C bis max. +120°C (mit Elastomerdichtung: -35°C bis max. +100°C)

### Typ Edelstahl und NC-Klemmring

**Werkstoffe:**  
Körper: 1.4571, ggf. vorhandene Elastomerdichtung: FKM

**Temperatuurbereich:**  
-60°C bis max. +400°C (mit

### FRANÇAIS Type acier galvanisé

**Matériaux:**  
Corps : Acier galvanisé, éventuelle présence de joint en élastomère: NBR

**Plage de température:**  
-40°C à max. +120°C (avec joint en élastomère: -35°C à +100°C max.)

### Type acier inoxydable et anneau de serrage NC

**Matériaux:**  
Corps : 1.4571, éventuelle présence de joint en élastomère : FKM

elastomer seal: -20°C to max. +200°C, NC screw connections on request up to +550°C)

**Temperatuurbereik:**  
-60 °C tot max. +400 °C (met elastomeerafdichting: -20 °C tot max. +200 °C, NC-koppelingen op aanvraag tot +550 °C)

Elastomerdichtung: -20°C bis max. +200°C, NC-Verschraubungen auf Anfrage bis +550°C)

**Plage de température:**  
-60°C à max. +400°C (avec joint en élastomère: -20°C à +200°C max, raccords NC sur demande jusqu'à +550°C)

### Montage cutting ring screw connections and compression ring fittings

- 1) Cut the tube away at a right angle and lightly deburr and clean the inside and outside. Do not use a tube cutter. In the case of thin-walled or soft pipes a reinforcing ring must be used.
- 2) Thoroughly oil the socket threads and cone, inner union nuts and cutting ring. For stainless steel cutting ring connections PASTE ES must be used (optional for compression ring).
- 3) Push the union nut and cutting ring onto the tube. Ensure the correct position of the cutting ring/compression ring - otherwise the assembly will be incorrect.
- 4) Loosen the union nut as far as possible by hand. Attach the marking of the union nut for checking the specified rotations. Press tube in the cone until the stop. Tighten the union nut with screw wrench approx. 1 rotation. The tube must not be rotated.
- 5) Loosen the union nut to check the assembly. **Cutting ring:** The raised tube material must cover the front cutting ring area. If not, retighten slightly. Due to the spring effect of the cutting ring, this can still be rotated - no functional error. **compression ring:** The compression ring can no longer be displaced.
- 6) Final assembly: Assemble the union nuts on sockets until there is a noticeable increase in force. Then tighten with 1/4 - 1/2 rotation (cutting ring fitting), or 3/4 rotation (compression ring fitting).

### Warning:

Assembly of stainless steel screw connections only with the aid of suitable lubricant.

### Notes on compression ring fittings

#### Advantages:

• Compatible with all cutting ring fittings according to DIN EN ISO 8434-1 (DIN 2353). Also resistant to dynamic loads such as vibrations and pulsations. It can be loosened and screwed back in as often as is necessary. • In contrast to a cutting ring the compression ring is not hardened, therefore it cannot rust and has good chemical resistance. • Lubrication of the nut thread for initial assembly is not necessary, •Vacuum tightness  $Q < 10^{-8}$  mbar l/s, •Ideal for use in gas and water area

### Required tube quality:

The screw connections must be processed with heat treated, seamless stainless steel tubes (1.4571) according to DIN EN ISO 1127. The tolerance category should be D4/T3, the surface must not show any damage and its hardness should not be more than Rockwell HRB 90.



### Union nuts for brass screw connections

Reference	Material	Size of threaded connection	Outer pipe diameter (mm)	Max pressure (bar) *
UNL-B-04	Brass	M8 x 1	4	150
UNL-B-05	Brass	M10 x 1	5	150
UNL-B-06	Brass	M10 x 1	6	150
UNL-B-08	Brass	M12 x 1	8	135
UNL-B-10	Brass	M16 x 1.5	10	95
UNL-B-12	Brass	M18 x 1.5	12	75
UNL-B-14	Brass	M20 x 1.5	14	89
UNL-B-15	Brass	M20 x 1.5	15	82
UNL-B-16	Brass	M22 x 1.5	16	86
UNL-B-18	Brass	M24 x 1.5	18	67
UNL-B-22	Brass	M30 x 1.5	22	54

\* - Operating pressure with hard copper tube



## Compression rings for brass screw connections

Reference	Material	Outer pipe diameter (mm)	Max pressure (bar) *
CRL-B-04-C	Brass	4	150
CRL-B-05-C	Brass	5	150
CRL-B-06-C	Brass	6	150
CRL-B-08-C	Brass	8	135
CRL-B-10-C	Brass	10	95
CRL-B-12-C	Brass	12	75
CRL-B-14-C	Brass	14	89
CRL-B-15-C	Brass	15	82
CRL-B-16-C	Brass	16	76
CRL-B-18-C	Brass	18	67
CRL-B-22-C	Brass	22	54

\* - Operating pressure with hard copper tube

### ENGLISH

#### Temperature range:

-60°C up to max. +300°C (with seal: -20°C up to max. +80°C)

#### Recommended raw materials:

Copper, polyamide (with reinforced sleeve)

#### Note:

The brass compression ring screw connections cannot be combined with the cutting ring pipe screw connectors ISO 8434-1 (DIN 2353). When using soft copper tube a correction factor of 0,65 must be used (pressure x 0,65). When using polyamide tube the operating pressure of the tube applies.

#### Materials:

Brass

### NEDERLANDS

#### Temperatuurbereik:

-60°C tot max. +300°C (met afdichting: -20°C tot max. +80°C)

#### Aanbevolen buismaterialen:

Koper, polyamide (met versterkingshuls)

#### Aanwijzing:

De messing klemringkoppelingen kunnen niet met snijringbuiskoppelingen ISO 8434-1 (DIN 2353) gecombineerd worden. Bij gebruik van zachte koperen buis dient de correctiefactor van 0,65 toegepast te worden (Druk x 0,65). Bij gebruik van polyamide buis gelden de bedrijfsdrukken van de buis.

#### Materialen

Messing

### DEUTSCH

#### Temperaturbereich:

-60°C bis max. +300°C (mit Dichtung: -20°C bis max. +80°C)

#### Empfohlene Rohrwerkstoffe:

Kupfer, Polyamid (mit Verstärkungshülse)

#### Hinweis:

Die Messing-Klemmringverschraubungen sind nicht mit Schneidring-Rohrverschraubungen ISO 8434-1 (DIN 2353) kombinierbar. Bei Verwendung von weichem Kupferrohr ist der Korrekturfaktor von 0,65 anzuwenden (Druck x 0,65). Bei Verwendung von Polyamidrohr gelten die Betriebsdrücke des Rohres.

#### Werkstoffe:

Messing

### FRANÇAIS

#### Plage de température:

-60°C à max. +300°C (avec joint: -20°C jusqu'à max. +80°C)

#### Matériaux de tubes recommandés:

Cuivre, polyamide (avec douille de renfort)

#### Remarque:

Les raccords à bagues de serrage en laiton ne peuvent pas être combinés avec des raccords filetés de tuyaux à bagues coupantes ISO 8434-1 (DIN 2353). Lors de l'utilisation d'un tuyau en cuivre doux, un facteur de correction de 0,65 doit être appliqué (pression x 0,65). Lors de l'utilisation d'un tuyau en polyamide, les pressions de service du tube s'appliquent.

#### Matériaux:

Laiton



## Compression rings for brass screw connections

Brass	Stainless steel	Inner pipe diameter (mm)	Outer pipe diameter (mm)	Type
RRL-B-04X02	RRL-S-04X02	2	4	With collar
RRL-B-04X2P7	RRL-S-04X2P7	2.7	4	With collar
RRL-B-05X03		3	5	With collar
RRL-B-06X04	RRL-S-06X04	4	6	With collar
RRL-B-06X05-K *	RRL-S-06X05	5	6	With collar
	RRL-S-08X05	5	8	With collar
RRL-B-08X06	RRL-S-08X06	6	8	With collar
RRL-B-10X07	RRL-S-10X07	7	10	With collar
RRL-B-10X08	RRL-S-10X08	8	10	With collar
RRL-B-12X09	RRL-S-12X09	9	12	With collar
RRL-B-12X10	RRL-S-12X10	10	12	With collar
RRL-B-14X11	RRL-S-14X11-K *	11	14	With collar
RRL-B-14X12	RRL-S-14X12	12	14	With collar
RRL-B-15X13	RRL-S-15X13	13	15	With collar
RRL-B-16X14	RRL-S-16X14	14	16	With collar
RRL-B-18X14		14	18	With collar
RRL-B-18X15	RRL-S-18X15	15	18	With collar
RRL-B-18X16	RRL-S-18X16-K *	16	18	With collar
RRL-B-20X16		16	20	With collar
RRL-B-20X18		18	20	With collar
RRL-B-22X18	RRL-S-22X18-K *	18	22	With collar
RRL-B-22X20	RRL-S-22X20-K *	20	22	With collar
RRL-B-25X22-K *	RRL-S-25X22-K *	22	25	With collar
	RRL-S-25X23-K *	23	25	With collar
RRL-B-28X25	RRL-S-28X25-K *	25	28	With collar
RRL-B-35X31-K *		31	35	With collar
RRL-B-42X38-K *	RRL-S-42X38-K *	38	42	With collar

Note: -K – with knurl;

Length: RRL-S-06X04 – 10mm, RRL-S-08X06 – 14mm, RRL-S-10X08 – 16mm

### Suitable:

Reinforcing rings are installed for thin-walled steel pipes, copper pipes and plastic pipes when using cutting ring fittings and compression ring fittings.

We recommend to use reinforcing rings for steel or stainless steel tubes. Always use reinforcing rings for copper or plastic pipes!

Wall thickness	Outer pipe diameter (mm) (steel or stainless steel)																	
	4	5	6	8	10	12	14	15	16	18	20	22	25	28	30	35	38	42
0.75	1	1	3															
1	1	1	1	1	1	2	3	3	3	3	3	3						
1.5			1	1	1	1	1	1	2	2	3	2	3	2				
2			1	1	1	1	1	1	1	1	2	2	2	2	3	2		3
2.5						1			1	1	1	1	1	1	2	2	3	3
3								1	1		1	1	1	1	1	1	2	2
4											1				1	1	1	1
4.5													1		1	1	1	
5															1	1	1	
6																	1	

1 - no reinforcement ring necessary; 2 - reinforcement ring recommended under increased load; 3 - reinforcement ring recommended