

**BROEN-LAB  
UNIFLEX™  
FLEXIBLE PIPES &  
HOSES**



BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES

BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES



**LAB  
FITTINGS**

**BROEN-LAB**

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## BROEN-LAB UNIFLEX™ HOSES - PRODUCT OVERVIEW

BROEN-LAB offers BROEN-LAB UniFlex™ hoses and flexible Stainless Steel pipes as an easy way to make the installation in the laboratory where safety and efficiency are required. BROEN-LAB UniFlex™ hoses are the ideal solution where there is a higher requirement for flexibility. Installation with flexible hoses saves time and labour - in other words - reduced installation costs.

*Select the right product to ensure safe installation and long service life!*

Hose material	SPX (braided)	PEX	LLDPE	PVDF	Rubber (Nitrile), polyester reinforced	Stainless Steel	Stainless Steel (braided)
Medium							
Potable / non-potable / coolant water*	<b>93V</b>	<b>93P</b>					
Special water sorts*	<b>93D</b>		<b>93K</b>	<b>93F</b>		<b>93Z</b>	
Burning gases					<b>93G</b>	<b>93Y</b>	
Non-burning 2.0 gases/ Vacuum	<b>93T</b>	<b>93B</b>					
Non-burning 4.0 gases/ Oxygen						<b>93Q</b>	
High purity 5.0 gases						<b>93Q</b>	
High purity 6.0 gases							<b>93S</b>

\* Remember to use insulation material for coolant water in order to avoid water condensation!

### INSULATION MATERIAL FOR BROEN-LAB UNIFLEX™ HOSES FOR COOLANT WATER



#### SPECIFICATIONS

**Item No:** 95F0015

**Standard length:** 2m

**Hose material:** Highly flexible, closed-cell insulation, FEF (Flexible Elastometric Foam)

**Inside diameter:** 12mm

**Outside diameter:** 38mm

The insulating material needs to be secured with a cable strip (BROEN-LAB item no. 96M0208) on both ends in order to avoid any warm air to have access to the surface of the hose.

# BROEN-LAB UNIFLEX™ HOSES / STAINLESS STEEL FLEXIBLE PIPES SELECTION GUIDE



The total design of the system must be taken into consideration when selecting the type of BROEN-LAB UniFlex™ flexible hose or pipe for specific media. Only then products will provide safe, trouble-free operation.

**Please always check local requirements/regulations regarding installation and maintenance of hoses/flexible pipes!**

A very high quality of materials applied for production of hoses and Stainless Steel flexible pipes, which are supplied by BROEN-LAB, and a long-time experience in making installations worldwide, combined with optimal installation conditions, may assure a lifetime for a hose to be more than 10 years. Expected lifetime can only be achieved under normal use and proper installation methods, which are described in technical specifications, i.e. max. working pressure, max. temperature, physical installation methods and other. Any nonconformity to specifications decreases the lifetime of a hose/flexible pipe.

## Which hose/flexible pipe to select?

In the table below you find the summary of the factors that are necessary to consider when selecting a BROEN-LAB UniFlex™ flexible hoses/pipes.

Hose Factors*	SPX 93V, 93D, 93T	PEX 93P, 93B	LLDPE / PVDF 93K, 93F	Rubber 93G	SS 93Z, 93Y, 93Q	SS (Braided) 93S
Inner hose material with media contact	SPX	PEX	- LLDPE (93K) - PVDF (93F)	Nitrile (NBR)	Corrugated Stainless Steel AISI 316	Corrugated Stainless Steel AISI 316
Outer hose material / braiding	Stainless Steel AISI 304	None	None	EPDM (polyester reinforced)	None	Stainless Steel AISI 304
Sealing material	EPDM (93V, 93D) FKM (93T)	- EPDM (93P) - FKM (93B)	None	Nitrile (NBR)	EPDM (93Z) Nitrile (NBR) (93Y) FKM (93Q)	None
Inside diameter	8.2mm	6.4mm	7mm	6.3mm	8.5mm	8.2mm
Outside diameter	12mm	10mm	10mm	12.9mm	12mm	12.2mm
Max. working pressure	10 bar (water) 16 bar (gases)	10 bar	10 bar by 23°C 6 bar by 65°C	10 bar	21 bar (93Z, 93Q) 16 bar, DVGW (93Y)	21 bar
Max. working temperature	90°C	70°C	65°C	50°C	50°C	50°C***
Min. bending radius (inner)	40mm	50mm	90mm	40mm	15mm (single bend) 130 mm (dynamic bend)	32mm (single bend)
UV resistance	++	+	+	+	+++	+++
Range of connections	+++	+	+	+++	++	+

\* Values shown in the table are valid for hoses and flexible Stainless Steel pipes only.

For more information please refer to individual pages in this catalogue or contact your BROEN-LAB representative.

\*\* PTFE and rubber are penetrable materials meaning that gases, vapors, and liquids may diffuse through them. Therefore, for applications where a defined gas content is required, or absorbed gases might disturb applications, alternative materials could be considered. Check compatibility with gases in application!

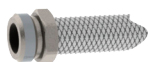
\*\*\* For applications requiring higher temperatures please contact your BROEN-LAB representative.



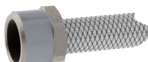


**INLET CONNECTIONS**  
93 V XX XX XXXX

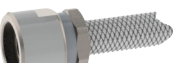
Male G3/8 fixed connection (Code 32)



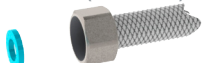
Male G1/2 fixed connection (Code 31)



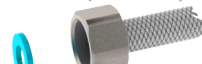
Male G3/4 fixed connection (Code 33)



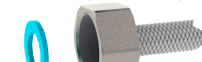
Female G3/8 union nut connection (Code 41)



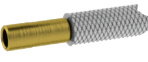
Female G1/2 union nut connection (Code 40)



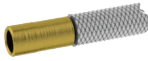
Female G3/4 union nut connection (Code 42)



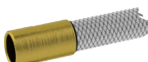
OD10mm connection for compression fittings (Code 10)



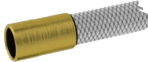
OD12mm connection for compression fittings (Code 12)



OD15mm connection for compression fittings (Code 15)



OD15mm connection for press fittings (Code 65)



Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 25)



90° BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 30)

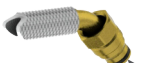


**OUTLET CONNECTIONS**  
93 V XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 25)



90° BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 30)



M10x1mm short connection with EPDM O-ring (Code 51)



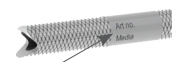
**PLEASE NOTE:**

M10 connections can only be used to mixer and multimedia fittings

\*All O-rings are lubricated with silicone based lubricant

**HOSE**  
93 V XX XX XXXX

SPX hose with braiding in stainless steel



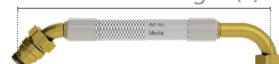
Marking for water with Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



Definition of length (L)



If 45° and 90° elbows occur on the same hose, it will as default be mounted in U-form

**\*Standard lengths of hoses (L):**

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
L ≤ 400mm (-0, +10mm)  
L = 401mm to 1000mm (-0, +20mm)  
L > 1000mm (-0, +30mm)

**SPECIFICATIONS**

- Inner hose material:** SPX (soft PEX)
- Braiding:** Stainless steel with one green stripe
- Materials with media contact:** SPX, brass, EPDM and silicone based lubricant
- Sealing:** EPDM, Aramid fiber/NBR
- Inside diameter:** 8.2mm
- Outside diameter:** 12mm
- Max. working pressure:** 10 bar
- Max. working temperature:** 90°C
- Bending radius (inner):** ≥ 40mm
- Min. length with connections:** 160mm

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



**93V12201200**

\* Other lengths are available on request



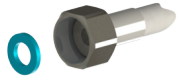
**INLET CONNECTIONS**

93 P XX XX XXXX

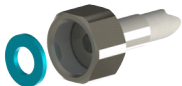
OD10mm hose connection (Code 00)



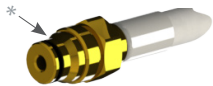
Female G3/8 union nut connection (Code 41)



Female G1/2 union nut connection (Code 40)



Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)



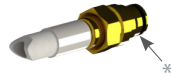
**OUTLET CONNECTIONS**

93 P XX XX XXXX

M10x1mm short connection with EPDM O-ring (Code 51)



Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)

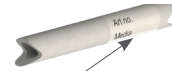


\*All O-rings are lubricated with silicone based lubricant

**HOSE**

93 P XX XX XXXX

PEX hose



Marking for water with Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



\*Standard lengths of hoses (L):

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
 L = ≤400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L = >1000mm (-0, +30mm)

**SPECIFICATIONS**

**Inner hose material:** PEX

**Braiding:** None

**Materials with media contact:**

PEX, brass, EPDM with silicone based lubricant

**Sealing:** EPDM, Aramid fiber/NBR

**Inside diameter:** 6.4mm

**Outside diameter:** 10mm

**Max. working pressure:** 10bar

**Max. working temperature:** 70°C

**Bending radius (inner):** ≥ 50mm

**Min. length with connections:** 160mm

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD10mm inlet connection and straight UniFlex™ outlet connection



**93P00201200**

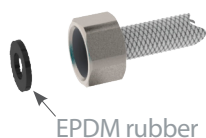
\* Other lengths are available on request



**INLET CONNECTIONS**

93 D XX XX XXXX

Female G1/2 union nut connection  
(Code 50)



EPDM rubber

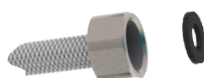
Straight BROEN-LAB UniFlex™ connec-  
tion with EPDM O-ring (Code 20)



**OUTLET CONNECTIONS**

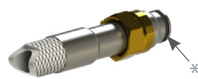
93 D XX XX XXXX

Female G1/2 union nut connection  
(Code 50)



EPDM rubber

Straight BROEN-LAB UniFlex™ connec-  
tion with EPDM O-ring (Code 20)

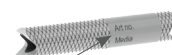


\*All O-rings are lubricated with  
silicone based lubricant

**HOSE**

93 D XX XX XXXX

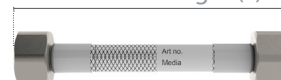
SPX hose with braiding  
in Stainless Steel



Marking for special water with  
Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



\*Standard lengths of hoses (L):

0500 = 500mm

0700 = 700mm

1000 = 1000mm

1200 = 1200mm

1500 = 1500mm

2000 = 2000mm

2500 = 2500mm

3000 = 3000mm

Length tolerance of hoses:  
L = ≤400mm (- 0, +10mm)  
L = 401mm to 1000mm (- 0, + 20mm)  
L = >1000mm (- 0, + 30mm)

**SPECIFICATIONS**

**Inner hose material:** SPX (soft PEX)

**Braiding:** Stainless steel with one  
green stripe

**Materials with media contact:**  
SPX, Stainless Steel AISI 316, EPDM

**Inside diameter:** 8.2mm

**Outside diameter:** 12mm

**Max. working pressure:** 10 bar

**Max. working temperature:** 90°C

**Bending radius (inner):** ≥ 40mm

**Min. length with connections:** 160mm

**EXAMPLE OF HOSE  
CONFIGURATION**

1200mm hose with 1/2" union inlet  
connection and 1/2" union outlet  
connection



**93D50501200**

\* Other lengths are available on request

# 93Z - BROEN-LAB UNIFLEX™ FLEXIBLE STAINLESS STEEL PIPES FOR SPECIAL WATER



BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES

## INLET CONNECTIONS

93 Z XX XX XXXX

OD10mm connection (Code 10)



OD12mm connection (Code 12)



OD15mm connection (Code 15)



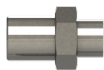
OD3/8" connection (Code 09)



Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)



1/4" NPT fixed male connection (Code 70)



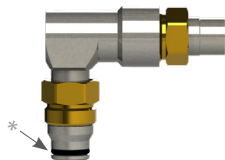
ISO228/1-G3/8" union connection (Code 41)



ISO228/1-G1/2" A union connection (Code 40)



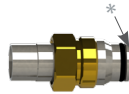
90° BROEN-LAB Uniflex connection with EPDM O-ring (Code 30)



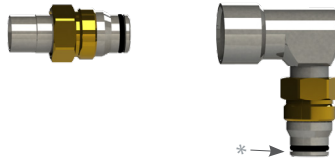
## OUTLET CONNECTIONS

93 Z XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with EPDM O-ring (Code 20)



90° BROEN-LAB Uniflex connection with EPDM O-ring (Code 30)



## HOSE

93 Z XX XX XXXX

Flexible SS pipe



## HOSE LENGTHS

Definition of length (L)



\*Standard lengths of hoses (L):

0500 = 500mm

0700 = 700mm

1000 = 1000mm

1200 = 1200mm

1500 = 1500mm

2000 = 2000mm

2500 = 2500mm

3000 = 3000mm

Length tolerance of hoses:

L = ≤400mm (-0, +10mm)

L = 401mm to 1000mm (-0, +20mm)

L = >1000mm (-0, +30mm)

## SPECIFICATIONS

### Inner hose material:

Stainless Steel 1.4404 similar to AISI 316L

### Braiding: None

### Materials with media contact:

Stainless Steel 1.4404, EPDM, Aramide fibre/NBR gasket

**Inside diameter:** 8.5 mm

**Outside diameter:** 12 mm

**Max. working pressure:** 21 bar

**Max. working temperature:** 50°C

**Bending radius (inner):**

≥ 15 mm (static)

≥ 130 mm (dynamic)

**Min. length with connections:** 500mm

**Max. movements (Bending radius**

**130mm):** 10.000\*\*

**Leakage rate:** <math>1 \times 10^{-3}</math> mbar l/s (He)

## EXAMPLE OF HOSE CONFIGURATION

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



**93Z12201200**

\* Other lengths are available on request

\*\* In accordance with ISO 10380





**INLET CONNECTIONS**  
93 K XX XX XXXX

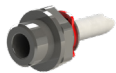
OD10mm pipe connection  
incl. support bushing (Code 00)



Male G3/8 fixed connection (code 32)



Male G1/2 fixed connection (Code 31)



Male G3/4 fixed connection (Code 33)



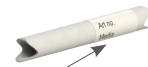
**OUTLET CONNECTIONS**  
93 K XX XX XXXX

OD10mm pipe connection  
incl. support bushing (Code 00)



**HOSE**  
93 K XX XX XXXX

LLDPE hose



Marking for special water with  
Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



\*Standard lengths of hoses (L):

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
L = ≤400mm (- 0, +10mm)  
L = 401mm to 1000mm (- 0, + 20mm)  
L = >1000mm (- 0, + 30mm)

BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES

**SPECIFICATIONS**

**Hose material:** LLDPE

**Braiding:** None

**Materials with media contact:**

LLDPE, PSU, EPDM

**Inside diameter:** 7mm

**Outside diameter:** 10mm

**Max. working pressure:**

10 bar by 23°C

6 bar by 65°C

**Max. working temperature:** 65°C

**Bending radius (inner):** ≥ 90mm

**Min. length with connections:** 150mm

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with G3/8" fixed  
inlet connection and OD10mm  
pipe outlet connection



**93K32001200**

\* Other lengths are available on request



**INLET CONNECTIONS**  
93 F XX XX XXXX

OD10mm pipe connection  
incl. support bushing  
(code 00)



ISO 7/1-R3/8 fixed connection  
(code 32)



ISO 7/1-R1/2 fixed connection  
(code 31)



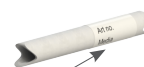
**OUTLET CONNECTIONS**  
93 F XX XX XXXX

OD10mm pipe connection  
incl. support bushing  
(code 00)



**HOSE**  
93 F XX XX XXXX

PVDF hose



Marking for special water with  
Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



\*Standard lengths of hoses (L):

0500 = 500mm

0700 = 700mm

1000 = 1000mm

1200 = 1200mm

1500 = 1500mm

2000 = 2000mm

2500 = 2500mm

3000 = 3000mm

Length tolerance of hoses:  
L = ≤400mm (- 0, +10mm)  
L = 401mm to 1000mm (- 0, + 20mm)  
L = >1000mm (- 0, + 30mm)

**SPECIFICATIONS**

**Hose material:** PVDF

**Braiding:** None

**Materials with media contact:**  
PVDF, PSU

**Inside diameter:** 7mm

**Outside diameter:** 10mm

**Max. working pressure:**

10 bar by 23°C

6 bar by 65°C

**Max. working temperature:** 65°C

**Bending radius (inner):** ≥ 90mm

**Min. length with connections:** 150mm

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with G3/8" fixed  
inlet connection and OD10mm  
pipe outlet connection



**93F32001200**

\* Other lengths are available on request



**INLET CONNECTIONS**

93 Y XX XX XXXX

OD10mm connection (Code 10)



OD12mm connection (Code 12)



OD15mm connection (Code 15)



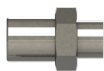
OD3/8" connection (Code 09)



Straight BROEN-LAB UniFlex™ connection with NBR O-ring (Code 20)



ISO228/1-G1/4" fixed male connection (Code 41)



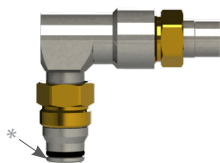
1/4" NPT fixed male connection (Code 70)



ISO228/1-G1/2" A union connection (Code 40)



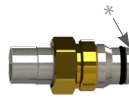
90° BROEN-LAB Uniflex connection with NBR O-ring (Code 30)



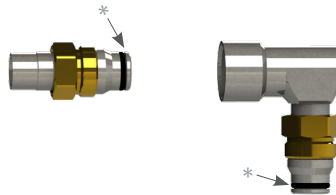
**OUTLET CONNECTIONS**

93 Y XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with NBR O-ring (Code 20)



90° BROEN-LAB Uniflex connection with NBR O-ring (Code 30)



\*All O-rings are lubricated with mineral oil based lubricant

**HOSE**

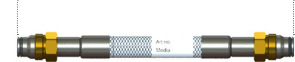
93 Y XX XX XXXX

Flexible SS pipe



**HOSE LENGTHS**

Definition of length (L)



\*Standard lengths of hoses (L):

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
 L = ≤400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L = >1000mm (-0, +30mm)

**SPECIFICATIONS**

- Inner hose material:** Stainless Steel 1.4404 similar to AISI 316L
- Braiding:** None
- Materials with media contact:** Stainless Steel 1.4404, NBR (Nitrile) lubricated with mineral oil based lubricant
- Inside diameter:** 8.5 mm
- Outside diameter:** 12 mm
- Max. working pressure:** 16 bar according to DVGW
- Max. working temperature:** 50°C
- Bending radius (inner):** ≥ 15 mm (static)  
≥ 130 mm (dynamic)
- Min. length with connections:** 500mm
- Max. movements (Bending radius 130mm):** 10.000\*\*
- Leakage rate:** <math>1 \times 10^{-3}</math> mbar l/s (He)

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



**93Y12201200**

\* Other lengths are available on request  
 \*\* In accordance with ISO 10380



**INLET CONNECTIONS**

93 G XX XX XXXX

Male G3/8 fixed connection (Code 32)



Male G1/2 fixed connection (Code 31)



Female G1/2" union nut connection (Code 40)



NBR rubber

OD10mm connection for compression fittings (Code 10)



OD12mm connection for compression fittings (Code 12)



OD15mm connection for compression fittings (Code 15)



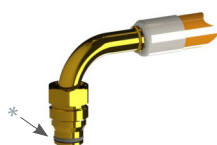
Straight BROEN-LAB UniFlex™ connection with NBR O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with NBR O-ring (Code 25)



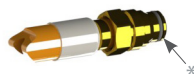
90° BROEN-LAB UniFlex™ connection with NBR O-ring (Code 30)



**OUTLET CONNECTIONS**

93 G XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with NBR O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with NBR O-ring (Code 25)



90° BROEN-LAB UniFlex™ connection with NBR O-ring (Code 30)

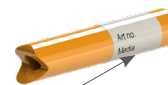


\*All O-rings are lubricated with mineral oil based lubricant

**HOSE**

93 G XX XX XXXX

Rubber hose (polyester reinforced)



Marking for burning gases with Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



Definition of length (L)



If 45° and 90° elbows occur on the same hose, it will as default be mounted in U-form

\*Standard lengths of hoses (L):

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
 L = ≤400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L = >1000mm (-0, +30mm)

**SPECIFICATIONS**

**Inner hose material:** Nitrile (NBR)

**Outer hose material:** EPDM

**Materials with media contact:**

brass, NBR

**Sealing material:** Nitrile (NBR) with mineral oil based lubricant

**Inside diameter:** 6.3mm

**Outside diameter:** 12.9mm

**Max. working pressure:** 10 bar

**Max. working temperature:** 50°C

**Bending radius (inner):** ≥ 40mm

**Min. length with connections:** 160mm \* Other lengths are available on request

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



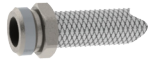
**93G12201200**



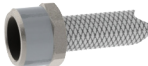


**INLET CONNECTIONS**  
93 T XX XX XXXX

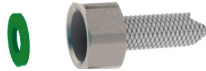
Male G3/8 fixed connection (Code 32)



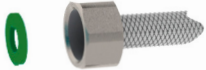
Male G1/2 fixed connection (Code 31)



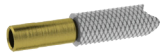
Female G3/8 union nut connection (Code 41)



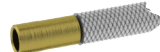
Female G1/2 union nut connection (Code 40)



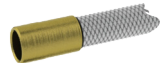
OD10mm connection for compression fittings (Code 10)



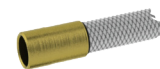
OD12mm connection for compression fittings (Code 12)



OD15mm connection for compression fittings (Code 15)



OD15mm connection for press fittings (Code 65)



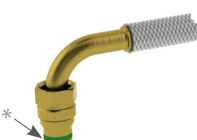
Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with FKM O-ring (Code 25)



90° BROEN-LAB UniFlex™ connection with FKM O-ring (Code 30)

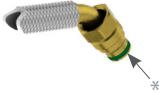


**OUTLET CONNECTIONS**  
93 T XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)



45° BROEN-LAB UniFlex™ connection with FKM O-ring (Code 25)



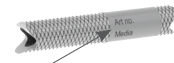
90° BROEN-LAB UniFlex™ connection with FKM O-ring (Code 30)



\*All O-rings are lubricated with perfluoropolyether based lubricant

**HOSE**  
93 T XX XX XXXX

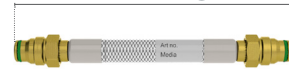
SPX hose with braiding in stainless steel



Marking for technical gases with Part no. and Media indication

**HOSE LENGTHS**

Definition of length (L)



Definition of length (L)



If 45° and 90° elbows occur on the same hose, it will as default be mounted in U-form

\*Standard lengths of hoses (L):

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
L = ≤400mm (- 0, +10mm)  
L = 401mm to 1000mm (- 0, + 20mm)  
L = >1000mm (- 0, + 30mm)

**SPECIFICATIONS**

- Inner hose material:** SPX (soft PEX)
- Braiding:** Stainless steel with one green stripe
- Materials with media contact:** PEX, brass, FKM and perfluoropolyether based lubricant
- Inside diameter:** 8.2mm
- Outside diameter:** 12mm
- Max. working pressure:** 16 bar
- Max. working temperature:** 90°C
- Bending radius (inner):** ≥ 40mm
- Min. length with connections:** 160mm

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



**93T12201200**

\* Other lengths are available on request

# 93B - BROEN-LAB UNIFLEX™ PEX HOSES FOR NON-BURNING 2.0 GASES/VACUUM



BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES

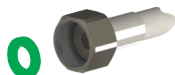
## INLET CONNECTIONS

93 B XX XX XXXX

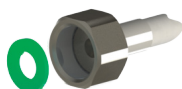
OD10mm hose connection (Code 00)



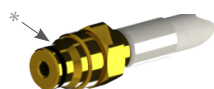
Female G3/8 union nut connection (Code 41)



Female G1/2 union nut connection (Code 40)



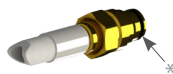
Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)



## OUTLET CONNECTIONS

93 B XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)

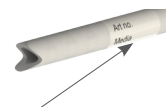


\*All O-rings are lubricated with perfluoropolyether based lubricant

## HOSE

93 B XX XX XXXX

PEX hose



Marking for Technical gases with Part no. and Media indication

## HOSE LENGTHS

Definition of length (L)



\*Standard lengths of hoses (L):

0500 = 500mm

0700 = 700mm

1000 = 1000mm

1200 = 1200mm

1500 = 1500mm

2000 = 2000mm

2500 = 2500mm

3000 = 3000mm

Length tolerance of hoses:  
 L ≤ 400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L > 1000mm (-0, +30mm)

## SPECIFICATIONS

**Inner hose material:** PEX

**Braiding:** None

**Materials with media contact:**

PEX, brass

**Sealing material:** FKM with perfluoropolyether based lubricant

**Inside diameter:** 6.4mm

**Outside diameter:** 10mm

**Max. working pressure:** 10bar

**Max. working temperature:** 70°C

**Bending radius (inner):** ≥ 50mm

**Min. length with connections:** 160mm

## EXAMPLE OF HOSE CONFIGURATION

1200mm hose with OD10mm inlet connection and straight UniFlex™ outlet connection





**93B00201200**


\* Other lengths are available on request

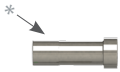



**INLET CONNECTIONS**  
93 Q XX XX XXXX


OD10mm connection (Code 10)  



OD12mm connection (Code 12)  



OD15mm connection (Code 15)  



OD3/8" connection (Code 09)  



Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)  


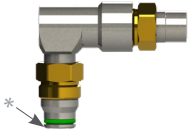
1/4" NPT fixed male connection (Code 70)  


ISO228/1-G3/8" union connection (Code 41)  


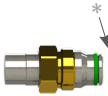
FKM Rubber gasket  


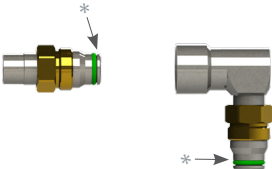
ISO228/1-G3/8" union connection (Code 41)  


FKM Rubber gasket  


90° BROEN-LAB Uniflex connection with FKM O-ring (Code 30)  



**OUTLET CONNECTIONS**  
93 Q XX XX XXXX

Straight BROEN-LAB UniFlex™ connection with FKM O-ring (Code 20)  


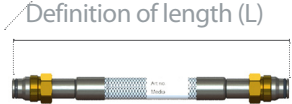
90° BROEN-LAB Uniflex connection with FKM O-ring (Code 30)  


\*All O-rings are lubricated with perfluoropolyether based lubricant

**HOSE**  
93 Q XX XX XXXX

Flexible SS pipe  


**HOSE LENGTHS**

Definition of length (L)  


**\*\*Standard lengths of hoses (L):**

- 0500 = 500mm
- 0700 = 700mm
- 1000 = 1000mm
- 1200 = 1200mm
- 1500 = 1500mm
- 2000 = 2000mm
- 2500 = 2500mm
- 3000 = 3000mm

Length tolerance of hoses:  
 L = ≤400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L = >1000mm (-0, +30mm)

**SPECIFICATIONS**

**Inner hose material:** Stainless Steel 1.4404 similar to AISI 316L  
**Braiding:** None  
**Materials with media contact:** Stainless Steel 1.4404, FKM (Viton), Perfluoropolyether based lubricant  
**Inside diameter:** 8.5mm  
**Outside diameter:** 12mm  
**Max. working pressure:** 21bar  
**Max. working temperature:** 50°C  
**Bending radius (inner):**  
 ≥ 15 mm (static)  
 ≥ 130 mm (dynamic)  
**Min. length with connections:** 500mm  
**Max. movements (Bending radius 130mm):** 10.000\*\*  
**Leakage rate:** <1x10<sup>-7</sup> mbar l/s (He)

**EXAMPLE OF HOSE CONFIGURATION**

1200mm hose with OD 12mm inlet connection and straight UniFlex™ outlet connection



**93Q12201200**

\* Other lengths are available on request  
 \*\* In accordance with ISO 10380

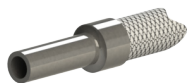
# 93S - BROEN-LAB UNIFLEX™ FLEXIBLE STAINLESS STEEL PIPES FOR HIGH PURITY GASES UP TO 6.0



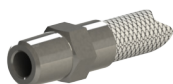
## INLET CONNECTIONS

93 S XX XX XXXX

OD10mm connection (Code 80)



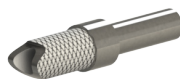
Male 1/4"NPT fixed connection (Code 70)



## OUTLET CONNECTIONS

93 S XX XX XXXX

OD10mm connection (Code 80)



## HOSE

93 S XX XX XXXX

Flexible SS pipe with braiding in stainless steel



Marking for clean gases with Part no. and Media indication

## HOSE LENGTHS

Definition of length (L)



\*\*Standard lengths of hoses (L):

0500 = 500mm

0700 = 700mm

1000 = 1000mm

1200 = 1200mm

1500 = 1500mm

2000 = 2000mm

2500 = 2500mm

3000 = 3000mm

Length tolerance of hoses:  
 L = ≤400mm (-0, +10mm)  
 L = 401mm to 1000mm (-0, +20mm)  
 L = >1000mm (-0, +30mm)

BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES

## SPECIFICATIONS

### Inner hose material:

Corrugated\* Stainless Steel 1.4404 similar to AISI 316L (acc. to EN 10028-7).  
 Cleaned for use with gases having purity coefficient 6.0 (99,9999% pure gases)

**Braiding:** Stainless Steel 1.4301 similar to AISI 304

**Hose connections:** Stainless Steel 1.4404 and 1.4541  
 (acc. to EN 10216-5 CFA D4/T4 (DIN 17458 D4/T4))

**Leak rate:** < 10<sup>-9</sup> mbar x l/s [He]

**Surface roughness of the raw material:** Ra max - 1.5 µm, Ra - 0.12 µm

**Inside diameter:** 8.3 mm

**Outside diameter:** 13.7 mm

**Max. working pressure:** 21 bar

**Max. working temperature:** 50°C

**Bending radius (inner):** ≥ 32 mm

**Min. length with connections:** 350mm

**Packaging:** individually packed in sealed bags

\* Corrugated hoses have a large inner surface with media contact, therefore extended flushing may be required before taking into use!  
 BROEN-LAB recommends purging by pressurizing a system by 10 bar to be repeated for 5-7 times.

## EXAMPLE OF HOSE CONFIGURATION

1200mm hose with male 1/4"NPT inlet connection and OD 10mm pipe outlet connection



**93S70801200**

\* Other lengths are available on request

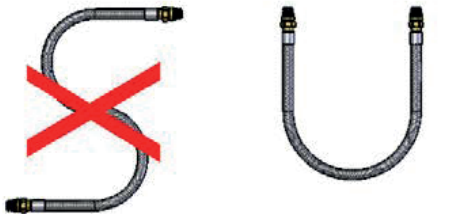




DK: Slangen/fleksibelt rør skal have en blød bue  
 UK: The hose/flexible pipe must have a soft bend  
 D: Der Schlauch/die flexible Verbindungsleitung muss eine weiche Kurve haben



DK: Slangen/fleksibelt rør må ikke strækkes helt ud  
 UK: The hose/flexible pipe may not be stretched completely  
 D: Der Schlauch/flexible Rohr darf nicht ganz ausgestreckt werden



DK: Slangen/fleksibelt rør må ikke få et s-formet bøj  
 UK: The hose/flexible pipe may not get a s-shaped bend  
 D: Der Schlauch/flexible Rohr darf nicht wie ein S gebogen werden



DK: Undgå at vride slangen/fleksibelt rør  
 UK: Avoid turning of the hose/flexible pipe  
 D: Vermeiden Sie den Schlauch/flexible Rohr zu verdrehen

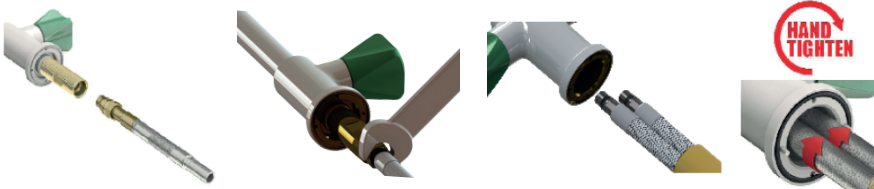


DK: :Vælg fittings der sørger for at slangens line ikke bukkes (indsæt vinkel dele, albueled m.m.)  
 UK: Select counter fittings in such way that the hose line is prevented from bucking (insert angular parts, elbows etc.)  
 D: Die Anschlüsse sind so zu wählen, das ein Abknicken der Schlauchleitung verhindert wird, gegebenen Falls sind Winkel oder Knieverbindungen für die Montage zu wählen.

DK: Vær sikker på at det er nok plads til at bevæge slangen, undgå kollision under brug (gælder 93Z, 93Y, 93Q og 93S)  
 UK: Make sure there is enough room to move the hose; avoid collision during operation (Related to 93Z, 93Y, 93Q and 93S)  
 D: Stellen Sie sicher, das genügend Platz vorhanden ist, so das sich der Schlauch im Betrieb eventuell bewegen kann, Der Schlauch sollte nicht an Wänden oder anderen Gegenständen anliegen (Bezogen auf 93Z, 93Y, 93Q und 93S)

DK: Monter helst slangelinen på ét niveau; undgå torsionsstress i tilfælde af bevægelse.  
 UK: Mount hose line preferably at one level; avoid torsional stress in case of movement.  
 D: Der Schlauch sollte vorzugsweise auf gleichem Niveau montiert werden; Torsionsbelastungen bei Bewegungen sind zu vermeiden!

DK: Installatøren er ansvarlig for at overholde gældende love og standarder  
 UK: The installer is responsible for complying with laws and standards  
 D: Der Installateur is dafür verantwortlich, dass geltende Gesetze und normen eingehalten werden.



DK: Slangetilslutningen skal spændes som vist.

UK: Hose connection must be tightened as shown.

D: Schlauchverbindung müssen angezogen werden, wie gezeigt.



## English

When mounting flexible connection hoses/pipes from BROEN-LAB a few basic rules must be followed to ensure a safe and durable connection.

### Keeping and transport

- Leave the connection hose/pipe in the original packing until installation
- Avoid clamping and breaking the flexible hose/pipe during transport

### Before the mounting

- The hose/pipe must be mounted accessible for following inspection
- The scope of application of the connection hose/pipe must be according to the installation planned
- Use the correct tools. Use appropriate opening spanner. Do not use pipe wrench or similar

### During mounting

- Install the flexible connection hose/pipe so that torsion, breaking and stretching of the hose is avoided
- Install the flexible connection hose/pipe, so that physical stress is avoided, e.g. wear and tear of the surface of the hose/pipe
- The hose/pipe may not be installed in strongly corrosive environments
- The hose/pipe must be mounted in a suitable suspension
- Avoid UV-light

### After mounting

- Test the tightness of the hose/pipe before start using the product

### Inspection

- The installation must be inspected according to local regulations, but min. once a year. Defects are to be replaced.
- Inspect for corrosion, exposures, deformities, crackings, cracks and other damage.

## Deutsch

Bei Montage von flexiblen Verbindungsleitungen von BROEN-LAB gibt es einige einfache Grundregeln für eine sichere und haltbare Verbindung.

### Aufbewahrung und Transport

- Die Verbindungsleitung muss bis zur Montage in der Originalverpackung aufbewahrt werden.
- Drücken und Knicken der Verbindungsleitung während des Transports muss vermieden werden.

### Vor der Montage

- Für spätere Inspektionen muss die Verbindung leicht zugänglich montiert werden.
- Der Anwendungsbereich der Verbindungsleitung muss in Übereinstimmung mit der geplanten Installation sein.
- Verwenden Sie korrektes Werkzeug. Verwenden Sie passende Festschlüssel und KEINE Rohrzangen oder ähnliches.

### Während der Montage

- Montieren Sie die flexible Verbindungsleitung so, dass Verdrehen, Knicken und Strecken des Leitung vermieden werden.
- Die Verbindungsleitung muss so montiert werden, dass physische Einwirkung, z.B. Verschleiß der Oberfläche, vermieden wird.
- Die Leitung darf in stark korrosiver Umgebung nicht montiert werden.
- Die Montage der Verbindungsleitung muss mit passenden Aufhängungen erfolgen.
- Vermeiden Sie UV-Licht.

### Nach Installation

- Die montierte Verbindungsleitung muss vor Inbetriebnahme auf Dichtigkeit überprüft werden.

### Inspektion

- Die Inspektion muss gemäß geltenden Regeln vor Ort vorgenommen werden, jedoch mindestens einmal jährlich. Defekte Teile sind auszutauschen.
- Überprüfen Sie, ob Korrosion, Ausbeulungen, Verformungen, Bruchstellen, Risse oder andere Schäden vorliegen.

## Dansk

Ved montage af fleksible koblingsledninger fra BROEN-LAB A/S er der få enkle grundregler, som bør følges, herved opnås en sikker og langtidsholdbar tilslutning.

### Opbevaring og transport

- Lad koblingsledningen blive i original emballage indtil ledningen skal monteres
- Undgå klemning og knækning af koblingsledningen under transport

### Forud for montering

- Koblingsledningen skal være monteret lettilgængelig for efterfølgende tilsyn
- Koblingsledningens anvendelsesområde skal være i overensstemmelse med den påtænkte installation
- Brug korrekt værktøj. Anvend passende fastnøgler og ikke rørtænger eller lign.

### Under montage

- Monter den fleksible koblingsledning så vridning, knækning og strækning af ledningen undgås
- Koblingsledningen skal være monteret sådan at fysisk påvirkning undgås f.eks. i form af slitage af ledningens overflade
- Koblingsledningen må ikke monteres i stærkt korrosive miljøer
- Slangen monteres i passende ophæng
- Undgå UV-lys påvirkning

### Efter installation

- Tæthedsprøv den monterede koblingsledning inden den tages i brug

### Inspektion

- Installationen skal inspiceres ifølge gældende lokale regler, dog min. en gang årligt. Evt. defekter udskiftes.
- Se efter korrosion, udposninger, deformiteter, knæk, revner og andre skader.



For more information about BROEN-LAB products please refer to following brochures:



**BROEN-LAB UNIFLEX™ FLEXIBLE PIPES AND HOSES**

Can be downloaded at [www.BROEN-LAB.com](http://www.BROEN-LAB.com)

BROEN-LAB develops, manufactures and sells Laboratory Fittings, Emergency Shower Systems and Eye Wash Systems into a broad spectrum of laboratories and industrial locations; sectors include Pharmaceutical, Food&Beverage and Academia. Our expertise and product quality ensure optimal solutions compliant to all relevant international norms setting new standards in risk mitigation in modern research and development facilities.

BROEN-LAB offer solutions that ensure the functionality, compliance, hygiene, durability and safety are of the highest priority. For over 50 years our products have been integrated into a wide variety of workplaces, laboratories, hospitals and industrial locations, with features that are assessed and designed to be flexible, durable and compliant offering a broad range of options tailored to each location. This inherent design integrity provides confidence in the solution adopted wherever in the world these are applied.

BROEN-LAB is a collaboration partner in the design and layout of your next laboratory and it's integrated safety solutions.

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#### **BROEN-LAB A/S ISO 9001 certification**

In September 1991 BROEN-LAB A/S was certified according to ISO 9001 as one of the first Danish companies. The certification was carried out by Bureau Veritas, Denmark, for our Danish site in Assens. The quality management system of BROEN-LAB A/S now complies with detailed specifications laid down by the internationally acknowledged EN ISO 9001:2008. This certification will further contribute to reputation for quality and reliability of BROEN-LAB A/S.

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