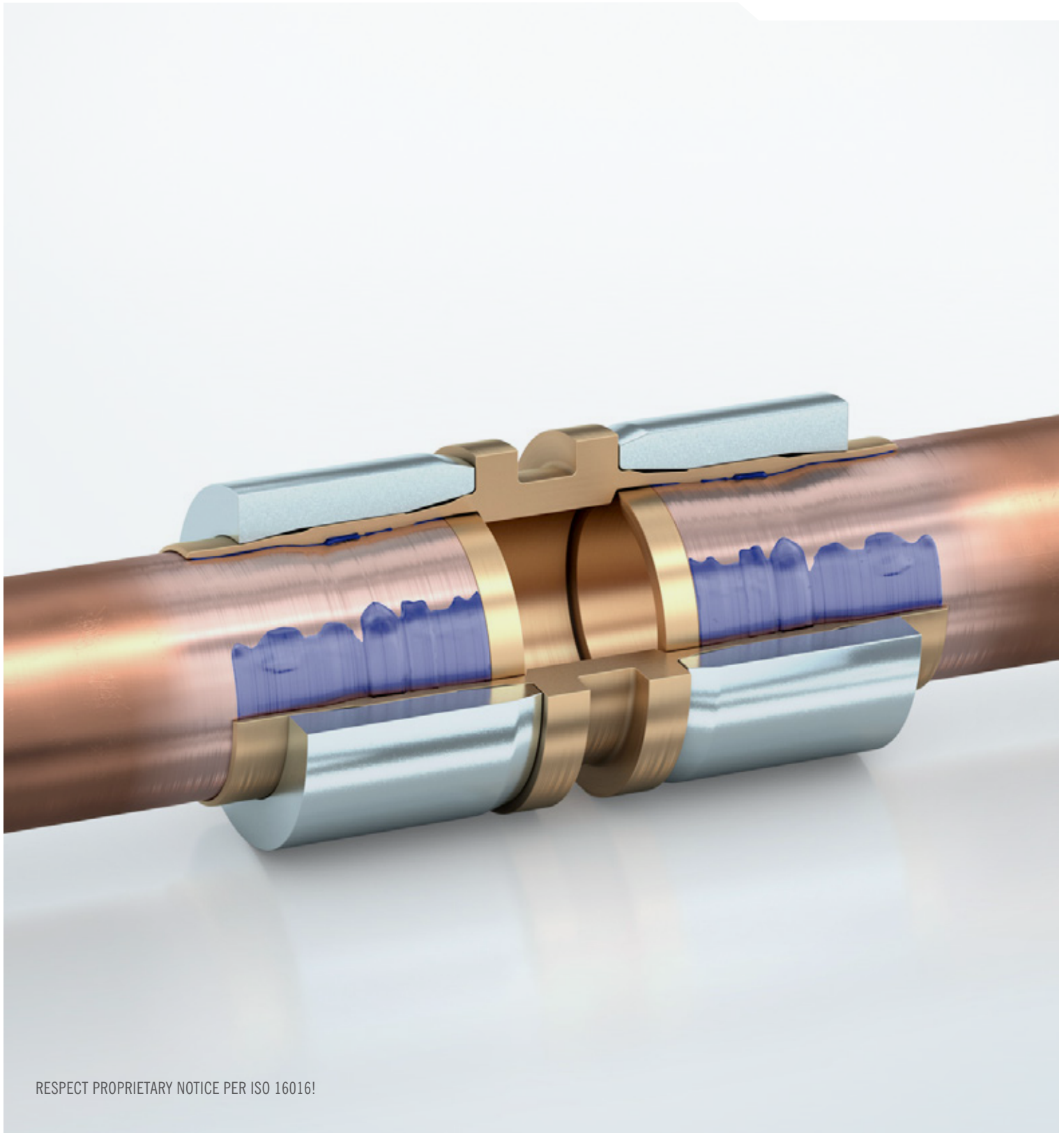


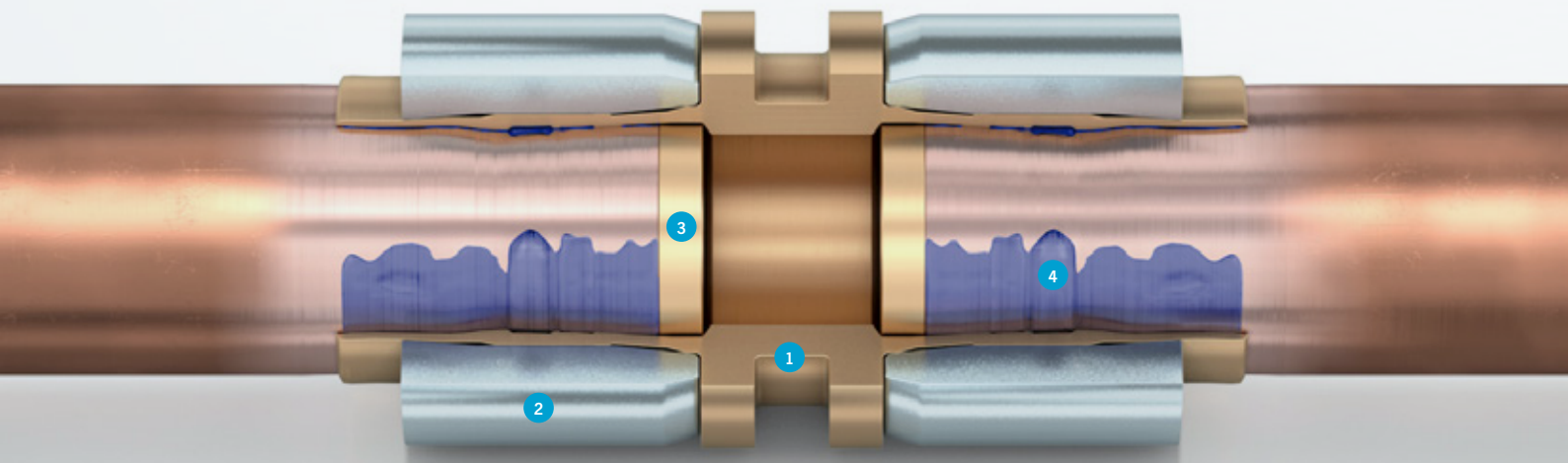
LOKRING® BRASS CONNECTORS TYPE 50

TECHNICAL DOCUMENTATION & SUBMITTAL VERSION 1.8



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LOKRING®

BRASS CONNECTORS TYPE 50

1.0 INTRODUCTION

The purpose of this document is to give technicians all information necessary about the solder-free LOKRING® tube connection technology in general and especially about brass LOKRING® connectors type 50.

2.0 AREAS OF APPLICATION

LOKRING® BRASS CONNECTORS TYPE 50 ARE BEING USED IN:

- ☉ Air conditioning systems (split, multi-split, VRF, HVAC)
- ☉ Commercial product refrigeration
- ☉ Heat pumps
- ☉ Solar thermal energy
- ☉ Geothermal energy

3.0 COMPONENTS OF A LOKRING® CONNECTION



JOINT (1)

The shape of the brass joint to be used is defined by one of the many types, sizes and repair situations.

RING (2)

The steel rings are electro galvanized, thick film passivated and Chrome VI free. Up to a diameter of 12,7 mm (1/2"), the rings are pre-assembled on the joint when delivered.

STABILISATION INSERT (3)

Brass stabilisation inserts bring additional safety into the LOKRING® connection by increasing the necessary pull-out force.

They also help correct slight ovality found in coiled line sets. Stabilisation inserts must always be used for LOKRING® brass connections type 50. In case of a wall thickness > 1.5 mm please contact us.

LOKPREP (4)

LOKPREP is an important component of the LOKRING® connection technology. LOKPREP will compensate for any unevenness in the tube surface such as longitudinal grooves or surface porosity, thus ensuring that every LOKRING® connection is hermetically sealed.

LOKTOOL MZ-V (5)

The hand assembly tool reduces the manual force needed during assembly. The assembly jaws are easy to exchange to match the size of the LOKRING® to be fitted.

LOKTOOL MB (6)

The assembly jaws fit the hand assembly tools LOKTOOL MZ and MZ-V. They can be replaced quickly and easily, thus making LOKRING® assembly possible with only one tool for different tube diameters. 9 different sizes are available to cover the whole diameter range from 6 to 41,3 mm (1/4" to 1 5/8").

LOKPRESS (7)

The cordless assembly tool enables the fast and safe processing of type 50 LOKRING connections with a diameter of 6 to 41,3 mm (1/4" to 1 5/8"). The assembly jaws move together when the start button is pressed.

Until the force has been built up, i.e. until the start of assembling, the assembly tool switches to automatic mode until the LOKRING® connection has been pressed completely. A special hydraulics valve and an electronic monitoring system guarantee safe assembly.

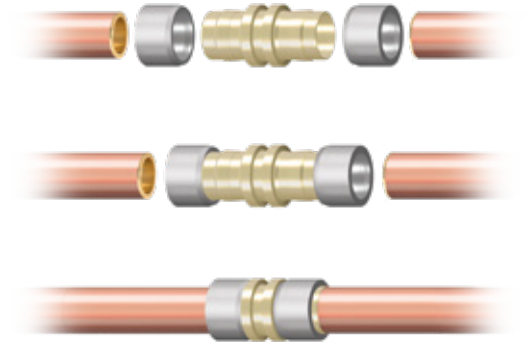
LOKRING®

BRASS CONNECTORS TYPE 50

4.0 FUNCTIONAL PRINCIPLE

The LOKRING® tube connection works on the basis of »simple« physical laws. It consists of two rings and one tubular joint which takes the two tube ends. During assembly, the tube ends are inserted into the joint to the inner limit. Then an assembly tool is used to push the two rings axially onto the joint. Due to the conical inner contour of the rings and the special outer and inner contour of the joint, the diameter of the joint is reduced during assembly so that the tube and the joint form a metallic hermetic connection through surface contact.

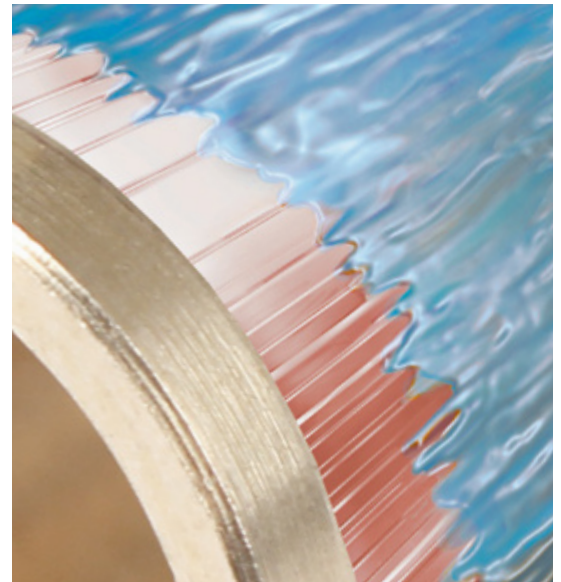
The lifetime gas-tightness of the fitted connection is ensured by the state of permanent elastic pre-tension, which is produced by the balance of the radial forces acting in opposite directions from tube to ring.



5.0 LOKPREP (ANAEROBIC SEALANT)

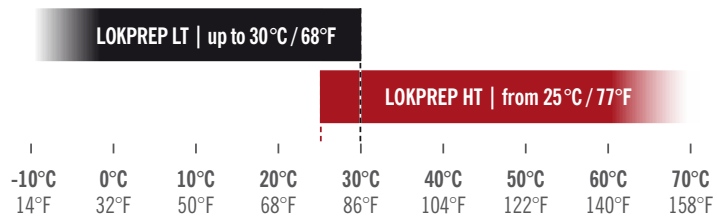
Metal tubes can have longitudinal grooves on the surface from production. These production related faults can be compensated quite easily by moistening the tube ends to be connected with LOKPREP fluid before assembly. Thanks to its capillary characteristic, it can even flow into microscopic cavities and fill these out completely.

LOKPREP is not an adhesive, rather an anaerobic sealant which hardens under oxygen exclusion and in contact with free metal ions. Its elastic structure is permanently retained in a temperature range of -50°C to 150°C (-58°F to 302°F), thus compensating material-specific deformations due to fluctuations in temperature. Since LOKPREP does not contain solvents which have to evaporate during hardening, the finished connection is ready for use shortly after assembly.



5.1 TYPES OF LOKPREP

Since LOKPREP’s curing time depends on the ambient temperature, two fluids exist for the LOKRING® brass connections types 50. The curing time of the LOKPREP LT has been optimally matched to ambient temperatures up to 30°C (86°F). LOKPREP HT develops its optimum characteristics only at temperatures above 25°C (77°F).

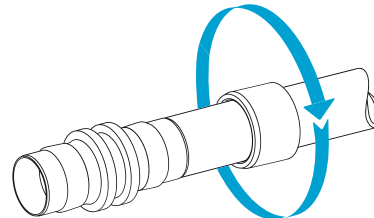


5.2 SPREADING THE LOKPREP

CHECK THE EXPIRY DATE BEFORE APPLYING LOKPREP. ALWAYS MAKE SURE THAT THE WHOLE TUBE CIRCUMFERENCE IS MOISTENED WITH LOKPREP.

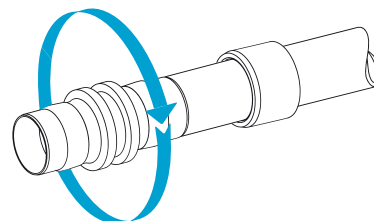
POSSIBILITY A

Rotate the moistened tube through 360° inside the joint.



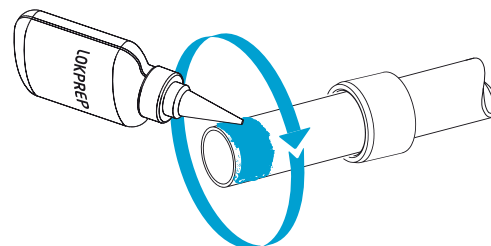
POSSIBILITY B

Rotate the joint through 360° around the end of the tube.



POSSIBILITY C

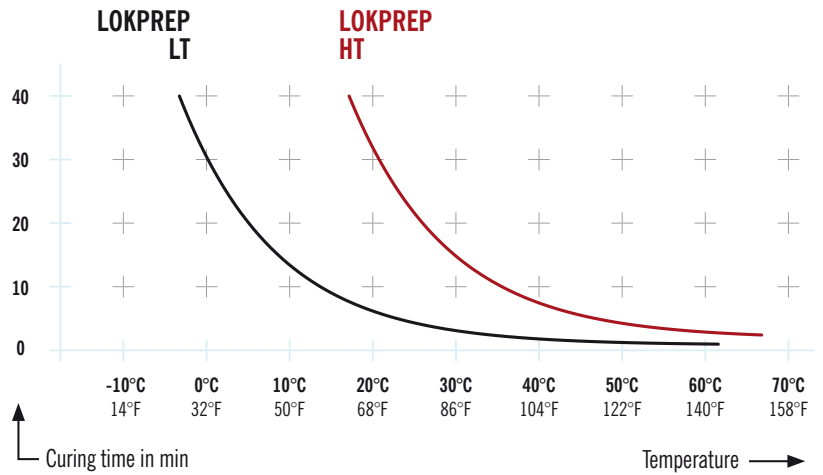
Move the nozzle 360° around the tube to distribute the LOKPREP evenly.



LOKRING® BRASS CONNECTORS TYPE 50

5.3 CURING TIME

Always make sure that the LOKPREP is properly cured before exerting any force on the LOKRING connection by moving, turning or bending the tube.



6.0 TECHNICAL SPECIFICATIONS AND APPROVALS OF THE LOKRING CONNECTION

Reference standards: EN 378-2 and ISO 14903

Max. operating pressure: 75 bar (1088 psi)

Admissible refrigerants: Suitable for all HFCs and mixtures, all HCs, R32 and CO₂*. Not suitable for NH₃.

Temperature range: -50°C up to 150°C (-58°F up to 302°F)

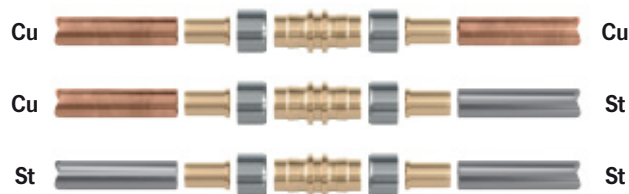
Tube diameter range: 6 to 41,3 mm (1/4" to 1 5/8")

Minimum tube wall thickness: 0.7 mm

Approvals: TÜV, UL (File SA12004)

* Up to the max. operating pressure specified for each connector.

7.0 MATERIAL COMBINATIONS*



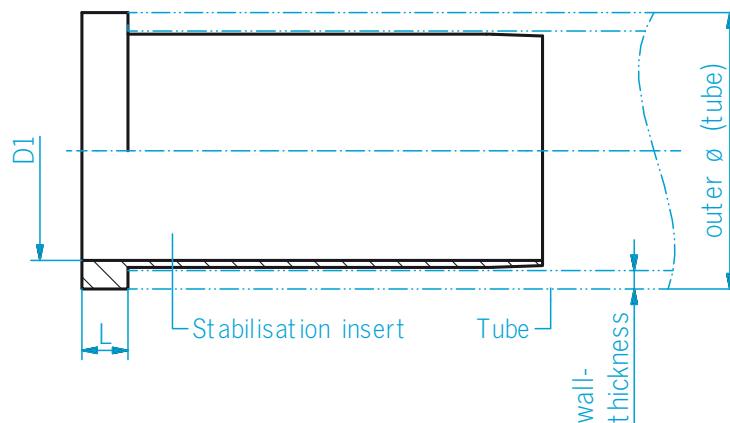
* Other material combinations on request.

BRASS STABILISATION INSERT AND SPECIFICATION FOR COPPER TUBE

8.0 PRODUCTS SUITABLE FOR AN EXTENDED OPERATING PRESSURE RANGE

Introduction: All products in this chapter are suitable for applications with an operating pressure of up to 75 bar (1088 psi) including subcritical CO₂ applications.

8.1 BRASS STABILISATION INSERT AND SPECIFICATION FOR COPPER TUBE



Article no.	Article name	Dimension				Notes
		max. tube outer-ø	min. tube outer-ø	max. wall thickness	min. wall thickness	
		mm	mm	mm	mm	
L12003155	LOKRING 6 VH Ms 08	6.090	5.910	0.88	0.72	
L12003156	LOKRING 6 VH Ms 10	6.090	5.910	1.13	0.87	
L12003526	LOKRING 6.35 VH Ms 07	6.440	6.260	0.77	0.63	
L12003214	LOKRING 6.35 VH Ms 08	6.440	6.260	0.88	0.72	
L12003287	LOKRING 6.35 VH Ms 09	6.440	6.260	0.99	0.81	
L12003215	LOKRING 6.35 VH Ms 10	6.440	6.260	1.13	0.87	
L12002894	LOKRING 8 VH Ms 08	8.030	7.850	0.88	0.72	
L12002175	LOKRING 8 VH Ms 10	8.030	7.850	1.13	0.87	

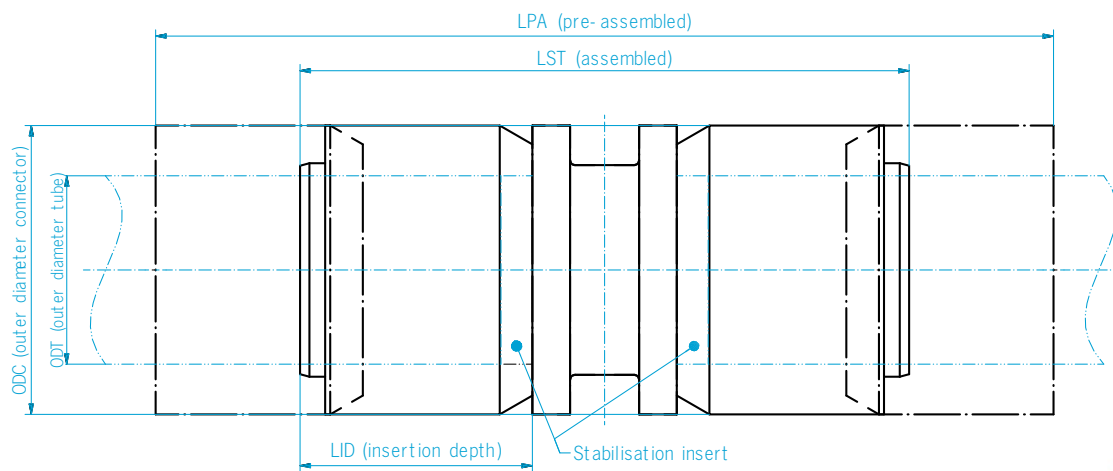
BRASS STABILISATION INSERT

Article no.	Article name	Dimension				Notes
		max. tube outer-ø	min. tube outer-ø	max. wall thickness	min. wall thickness	
		mm	mm	mm	mm	
L12001978	LOKRING 9.53 VH Ms 07	9.620	9.440	0.77	0.63	
L12003085	LOKRING 9.53 VH Ms 08	9.620	9.440	0.88	0.72	
L12003086	LOKRING 9.53 VH Ms 09	9.620	9.440	0.99	0.81	
L12001988	LOKRING 9.53 VH Ms 10	9.620	9.440	1.13	0.87	
L12002457	LOKRING 10 VH Ms 08	10.090	9.910	0.88	0.72	
L12002018	LOKRING 10 VH Ms 10	10.090	9.910	1.13	0.87	
L12003646	LOKRING 12 VH Ms 08	12.090	11.910	0.88	0.72	
L12002017	LOKRING 12 VH Ms 10	12.090	11.910	1.13	0.87	
L12001979	LOKRING 12.7 VH Ms 07	12.790	12.610	0.77	0.63	
L12003087	LOKRING 12.7 VH Ms 08	12.790	12.610	0.88	0.72	
L12003088	LOKRING 12.7 VH Ms 09	12.790	12.610	0.99	0.81	
L12001989	LOKRING 12.7 VH Ms 10	12.790	12.610	1.13	0.87	
L12002290	LOKRING 15 VH Ms 10	15.090	14.910	1.13	0.87	
L12003443	LOKRING 16 VH Ms 08	15.970	15.790	0.88	0.72	
L12003089	LOKRING 16 VH Ms 09	15.970	15.790	0.99	0.81	
L12001990	LOKRING 16 VH Ms 10	15.970	15.790	1.13	0.87	
L12003090	LOKRING 16 VH Ms 11	15.970	15.790	1.24	0.96	
L12002033	LOKRING 18 VH Ms 10	18.090	17.910	1.13	0.87	
L12003091	LOKRING 19 VH Ms 09	19.150	18.950	0.99	0.81	
L12001991	LOKRING 19 VH Ms 10	19.150	18.950	1.15	0.85	
L12003092	LOKRING 19 VH Ms 11	19.150	18.950	1.27	0.94	
L12002766	LOKRING 19 VH Ms 12	19.150	18.950	1.38	1.02	
L12003649	LOKRING 22 VH Ms 08	22.330	22.130	0.88	0.72	
L12003288	LOKRING 22 VH Ms 09	22.330	21.900	0.99	0.81	
L12001997	LOKRING 22 VH Ms 10	22.100	21.900	1.15	0.85	
L12003093	LOKRING 22 VH Ms 11	22.330	22.130	1.27	0.94	
L12002895	LOKRING 22 VH Ms 12	22.330	22.130	1.38	1.02	
L12003442	LOKRING 22 VH Ms 14	22.330	22.130	1.61	1.19	
L12002547	LOKRING 25.4 VH Ms 10	25.500	25.300	1.15	0.85	
L12002153	LOKRING 28 VH Ms 10	28.100	27.900	1.15	0.85	
L12003068	LOKRING 28 VH Ms 15	28.100	27.900	1.73	1.28	
L12003290	LOKRING 28.6 VH Ms 09	28.710	28.490	0.99	0.81	
L12002550	LOKRING 28.6 VH Ms 10	28.710	28.490	1.15	0.85	
L12003067	LOKRING 28.6 VH Ms 12	28.710	28.490	1.38	1.02	
L12003070	LOKRING 35 VH Ms 12	35.030	34.810	1.38	1.02	
L12003094	LOKRING 35 VH Ms 14	35.030	34.810	1.61	1.19	
L12002530	LOKRING 35 VH Ms 15	35.110	34.890	1.73	1.28	
L12004015	LOKRING 41.3 VH Ms 15	41.380	41.160	1.73	1.28	

STRAIGHT BRASS CONNECTOR

8.2 STRAIGHT BRASS CONNECTORS (LOKRING NK MS 50)

Please note: Both sides have the same dimensions (ODC/ODT/LID) and the shape / ring material of the connector can vary depending on size.

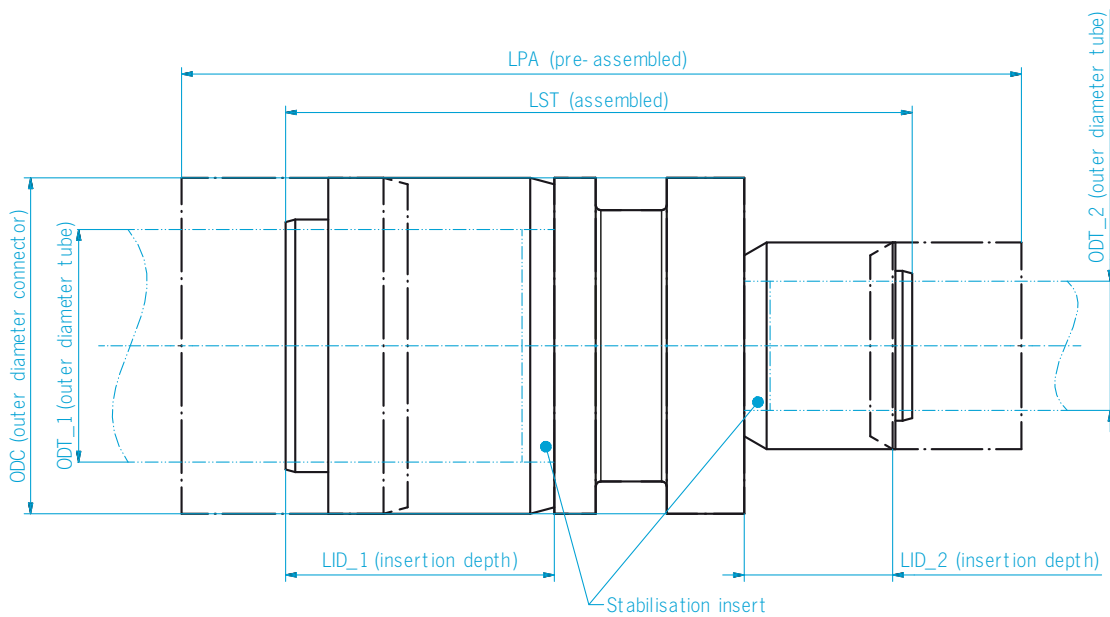


Article no.	Article name	Dimension					Notes	
		ODT		ODC	LID	LST		LPA (approx.)
		mm	in	mm	mm	mm		mm
L13004601	LOKRING 6 NK Ms 50	6	-	13	12	32.5	50	
L13004772	LOKRING 6.35 NK Ms 50	6.35	1/4	13	12	32.5	50	
L13001392	LOKRING 8 NK Ms 50	8	5/16	14	12	32.5	48	
L13001390	LOKRING 9.53 NK Ms 50	9.53	3/8	16	13	35.5	56	
L13001391	LOKRING 10 NK Ms 50	10	-	16	13	35.5	56	
L13001220	LOKRING 12 NK Ms 50	12	-	18	15.5	41	60	
L13001571	LOKRING 12.7 NK Ms 50	12.7	1/2	19	15.5	41	65	
L13001226	LOKRING 15 NK Ms 50	15	-	23	18.5	48.5	79	
L13001261	LOKRING 16 NK Ms 50	16	5/8	23	20	51.5	68	
L13001262	LOKRING 18 NK Ms 50	18	-	26	20.8	53.5	70	
L13000605	LOKRING 19 NK Ms 50	19.05	3/4	26	21.8	55.5	72	
L13000607	LOKRING 22 NK Ms 50	22	7/8	30	24.6	61.5	79	
L13000608	LOKRING 25.4 NK Ms 50	25.4	1	34	29	73	99	
L13001944	LOKRING 28 NK Ms 50	28	-	39	29	79	105	
L13001945	LOKRING 28.6 NK Ms 50	28.57	1 1/8	39	29	79	105	
L13003346	LOKRING 35 NK Ms 50	35	1 3/8	46	32	82	112	
L13006037	LOKRING 41.3 NK Ms 50	41.27	1 5/8	55	30	79	111	

STRAIGHT BRASS REDUCING CONNECTOR

8.3 STRAIGHT BRASS REDUCING CONNECTORS (LOKRING NR MS 50)

Please note: Both sides have the same dimensions (ODC/ODT/LID) and the shape / ring material of the connector can vary depending on size.

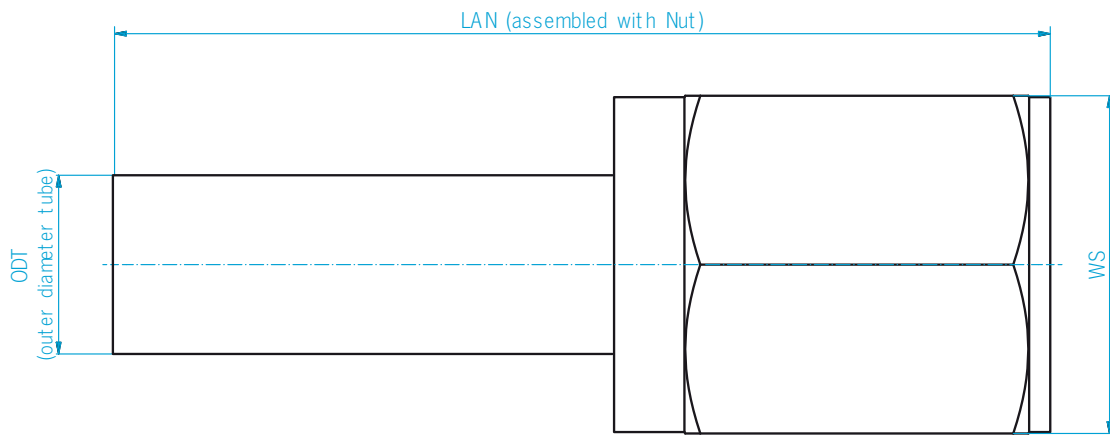


Article no.	Article name	Dimension								Notes	
		ODT1		ODT2		ODC	LID_1	LID_2	LST		LPA (approx.)
		mm	in	mm	in	mm	mm	mm	mm		
L13004603	LOKRING 6.35/6 NR Ms 50	6.35	1/4	6	-	13	12	12	32.5	50	
L13004604	LOKRING 8/6 NR Ms 50	8	5/16	6	-	14	12	12	32.5	49	
L13004774	LOKRING 8/6.35 NR Ms 50	8	5/16	6.35	1/4	14	12	12	32.5	50	
L13004606	LOKRING 9.53/6 NR Ms 50	9.53	3/8	6	-	16	13	12	34.5	53	
L13004773	LOKRING 9.53/6.35 NR Ms 50	9.53	3/8	6.35	1/4	16	13	12	34.5	53	
L13001629	LOKRING 9.53/8 NR Ms 50	9.53	3/8	8	5/16	16	13	12	34.5	53	
L13004607	LOKRING 10/6 NR Ms 50	10	-	6	-	16	13	12	34.5	53	

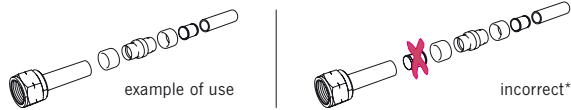
Article no.	Article name	Dimension								Notes	
		ODT1		ODT2		ODC	LID_1	LID_2	LST		LPA (approx.)
		mm in	mm in	mm in	mm	mm	mm	mm			
L13001651	LOKRING 10/8 NR Ms 50	10	-	8	5/16	16	13	12	34.5	53	
L13001396	LOKRING 10/9.53 NR Ms 50	10	-	9.53	3/8	16	13	13	35.5	56	
L13004608	LOKRING 12/6 NR Ms 50	12	-	6	-	18	15.5	12	39.5	58	
L13001233	LOKRING 12/9.53 NR Ms 50	12	-	9.53	3/8	18	15.5	13	38.5	58	
L13001234	LOKRING 12/10 NR Ms 50	12	-	10	-	18	15.5	13	38.5	58	
L13004609	LOKRING 12.7/6 NR Ms 50	12.7	1/2	6	-	19	15.5	12	39.5	60	
L13004785	LOKRING 12.7/6.35 NR Ms 50	12.7	1/2	6.35	1/4	19	15.5	12	39.5	60	
L13001831	LOKRING 12.7/8 NR Ms 50	12.7	1/2	8	5/16	19	15.5	12	39.5	59	
L13001702	LOKRING 12.7/9.53 NR Ms 50	12.7	1/2	9.53	3/8	19	15.5	13	38.5	61	
L13001789	LOKRING 12.7/10 NR Ms 50	12.7	1/2	10	-	19	15.5	13	38.5	61	
L13001822	LOKRING 12.7/12 NR Ms 50	12.7	1/2	12	-	19	15.5	15.5	41	63	
L13004786	LOKRING 16/6.35 NR Ms 50	16	5/8	6.35	1/4	23	20	12	46	63	
L13001407	LOKRING 16/9.53 NR Ms 50	16	5/8	9.53	3/8	23	20	13	45.5	64	
L13001408	LOKRING 16/10 NR Ms 50	16	5/8	10	-	23	20	13	45.5	64	
L13001314	LOKRING 16/12 NR Ms 50	16	5/8	12	-	23	20	15.5	47	65	
L13001703	LOKRING 16/12.7 NR Ms 50	16	5/8	12.7	1/2	23	20	15.5	47	68	
L13001315	LOKRING 18/16 NR Ms 50	18	-	16	5/8	26	20.8	20	52.5	69	
L13003552	LOKRING 19/9.53 NR Ms 50	19.05	3/4	9.53	3/8	26	21.8	13	49.5	68	
L13001826	LOKRING 19/12.7 NR Ms 50	19.05	3/4	12.7	1/2	26	21.8	15.5	49.5	70	
L13001446	LOKRING 19/16 NR Ms 50	19.05	3/4	16	5/8	26	21.8	20	54	71	
L13001823	LOKRING 19/18 NR Ms 50	19.05	3/4	18	-	26	21.8	20.8	54.5	71	
L13003897	LOKRING 22/12.7 NR Ms 50	22	7/8	12.7	1/2	30	24.6	15.5	53	74	
L13001400	LOKRING 22/16 NR Ms 50	22	7/8	16	5/8	30	24.6	20	56.5	74	
L13001447	LOKRING 22/19 NR Ms 50	22	7/8	19.05	3/4	30	24.6	21.8	58.5	75	
L13003333	LOKRING 25.4/19 NR Ms 50	25.4	-	19.05	3/4	34	29	21.8	66	87	
L13003534	LOKRING 28/16 NR Ms 50	28	-	16	5/8	39	29	20	71	92	
L13003334	LOKRING 28.6/12.7 NR Ms 50	28.57	1 1/8	12.7	1/2	39	29	15.5	68	93	
L13003335	LOKRING 28.6/16 NR Ms 50	28.57	1 1/8	16	5/8	39	29	20	71	92	
L13003543	LOKRING 28.6/19 NR Ms50	28.57	1 1/8	19.05	3/4	39	29	21.8	73	94	
L13003106	LOKRING 28.6/22 NR Ms 50	28.57	1 1/8	22	7/8	39	29	24.6	74.5	96	
L13003336	LOKRING 28.6/25.4 NR Ms 50	28.57	1 1/8	25.4	-	39	29	29	79	105	
L13003696	LOKRING 28.6/28 NR Ms 50	28.57	1 1/8	28	-	39	29	29	79	105	
L13004088	LOKRING 35/22 NR Ms 50	35	1 3/8	22	7/8	46	32	24.6	76	100	
L13004611	LOKRING 35/28.6 NR Ms 50	35	1 3/8	28.57	1 1/8	46	32	29	85.6	113	
L13006038	LOKRING 41.3/35 NR Ms 50	41.27	1 5/8	28.57	1 1/8	55	30	32	84.5	116	

EURO FLARE-FITTING

8.4 EURO FLARE-FITTING (LOKRING LR-EURO EB)



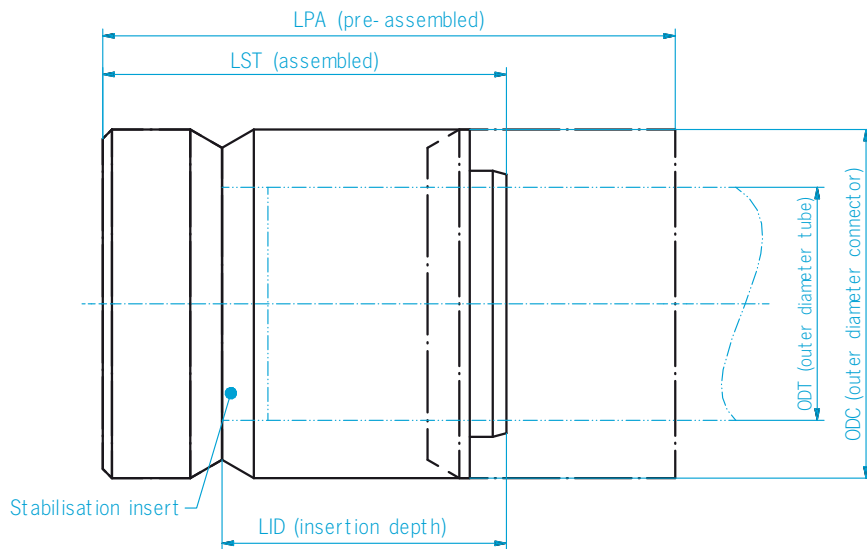
Use of stabilisation inserts



Article no.	Article name	Dimension					Notes	
		ODT		LAN (ca.)	WS (Nut)	Thread (Nut)		Tightening torque
		mm	in	mm	mm	in		(Nm)
L13004846	LOKRING LR-EURO-06,35-EB	6.35	1/4	55	17	1/4 SAE	14 - 18	*Stabilisation inserts must not be used within the stainless steel tube of a EURO flare-fitting.
L13004344	LOKRING LR-EURO-09,53-EB	9.53	3/8	56.5	22	3/8 SAE	33 - 42	
L13004847	LOKRING LR-EURO-12,7-EB	12.7	1/2	74	24	1/2 SAE	50 - 62	
L13004347	LOKRING LR-EURO-16-EB	16	5/8	74.5	27	5/8 SAE	63 - 77	
L13004388	LOKRING LR-EURO-19-EB	19.05	3/4	77	36	3/4 SAE	90 - 110	

BRASS STOPPER

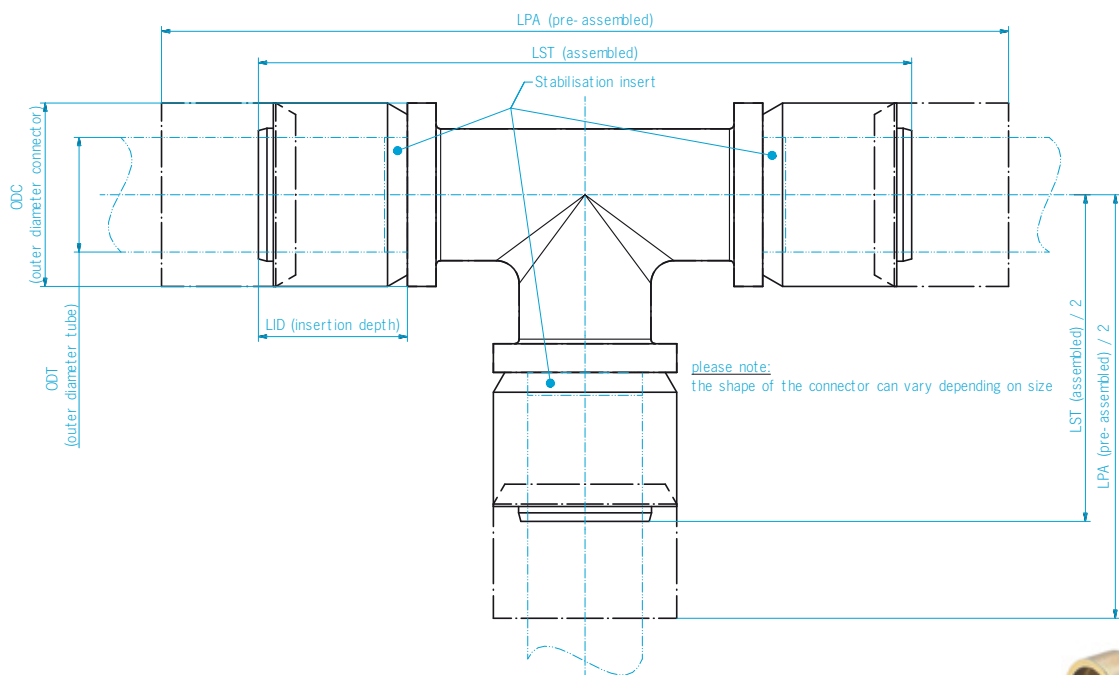
8.5 BRASS STOPPER (LOKRING VS MS 50)



Article no.	Article name	Dimension					Notes	
		ODT		ODC	LID	LST		LPA (approx.)
		mm	in	mm	mm	mm		mm
L13004940	LOKRING 6 VS Ms 50	6	-	13	12	17	24	
L13004941	LOKRING 6,35 VS Ms 50	6.35	1/4	13	12	17	24	
L13004943	LOKRING 9,53 VS Ms 50	9.53	3/8	16	13	18.5	28	
L13004946	LOKRING 12,7 VS Ms 50	12.7	1/2	19	15.5	22	31.5	
L13004947	LOKRING 16 VS Ms 50	16	5/8	23	20	27	35.5	
L13004949	LOKRING 19 VS Ms 50	19.05	3/4	26	21.8	30	37.5	
L13004953	LOKRING 28,6 VS Ms 50	28.57	1 1/8	39	29	40	53.5	

BRASS T-CONNECTOR

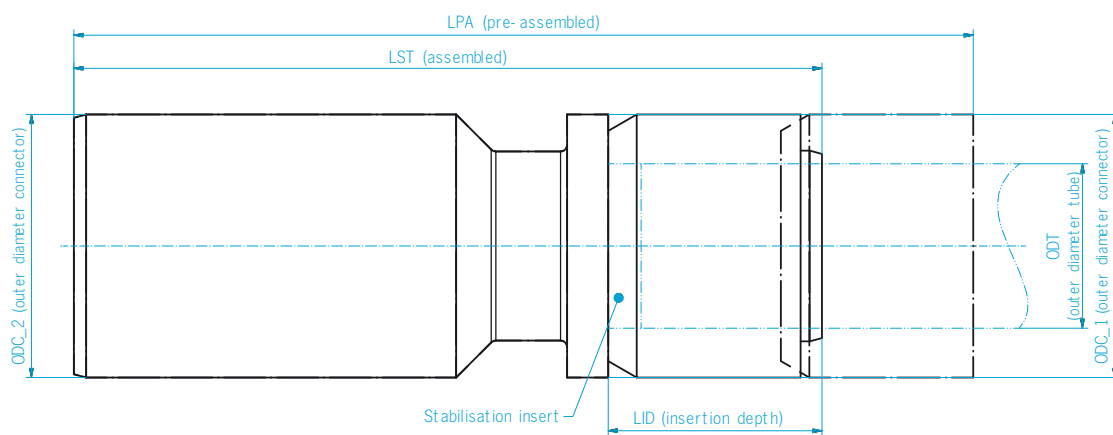
8.6 BRASS T-CONNECTOR (LOKRING NTK MS 50)



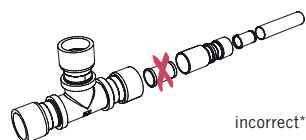
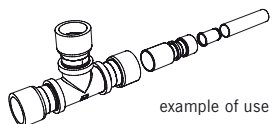
Article no.	Article name	Dimension					Notes
		ODT		ODC	LID	LST	
		mm	in	mm	mm	mm	
L13004614	LOKRING 6 NTK Ms 50	6	-	13	12	52	69.5
L13004777	LOKRING 6,35 NTK Ms 50	6.35	1/4	13	12	52	69.5
L13001193	LOKRING 9,53 NTK Ms 50	9.53	3/8	16	13	57	77
L13001194	LOKRING 10 NTK Ms 50	10	-	16	13	57	77
L13001195	LOKRING 12 NTK Ms 50	12	-	18	15.5	64	83
L13001698	LOKRING 12,7 NTK Ms 50	12.7	1/2	19	15.5	64	88
L13001198	LOKRING 16 NTK Ms 50	16	5/8	23	20	82	98
L13001190	LOKRING 18 NTK Ms 50	18	-	26	20.8	89	103
L13001199	LOKRING 19 NTK Ms 50	19.05	3/4	26	21.8	90	105
L13000812	LOKRING 22 NTK Ms 50	22	7/8	30	24.8	99	116
L13003339	LOKRING 28 NTK Ms 50	28	-	39	29	126	152
L13003338	LOKRING 28,6 NTK Ms 50	28.57	1 1/8	39	29	126	152
L13005002	LOKRING 35 NTK Ms 50	35	1 3/8	46	32	136	166

BRASS REDUCING ADAPTOR

8.7 BRASS REDUCING ADAPTOR (LOKRING NRA MS 50)



Use of stabilisation inserts



Article no.	Article name	Dimension							Notes
		ODT		ODC 1	ODC 2	LID	LST	LPA (approx.)	
		mm	in	mm	mm	mm	mm	mm	
L13005053	LOKRING 9,53/6,35 NRA Ms 50	6.35	1/4	13	9.53	12	42.5	49.5	*Stabilisation inserts must not be used within an NRA adaptor.
L13005050	LOKRING 10/6 NRA Ms 50	6	-	13	10	12	42.5	49.5	
L13005061	LOKRING 12/10 NRA Ms 50	10	-	16	12	13	46	55.5	
L13005054	LOKRING 12,7/6,35 NRA Ms 50	6.35	1/4	13	12.7	12	38	45	
L13005058	LOKRING 12,7/9,53 NRA Ms 50	9.53	3/8	16	12.7	13	49	58.5	
L13005059	LOKRING 16/9,53 NRA Ms 50	9.53	3/8	16	16	13	45.5	55	
L13005062	LOKRING 16/10 NRA Ms 50	10	-	16	16	13	45.5	55	
L13005064	LOKRING 16/12 NRA Ms 50	12	-	18	16	15.5	52.5	62	
L13005067	LOKRING 16/12,7 NRA Ms 50	12.7	1/2	19	16	15.5	52.5	62	
L13005073	LOKRING 18/16 NRA Ms 50	16	5/8	23	18	20	57.5	65.5	
L13005060	LOKRING 19/9,53 NRA Ms 50	9.53	3/8	16	19	13	49.5	59	
L13005913	LOKRING 19/12 NRA Ms 50	12	-	18	19	15.5	51	60.5	
L13005068	LOKRING 19/12,7 NRA Ms 50	12.7	1/2	19	19	15.5	51	60.5	

BRASS REDUCING ADAPTOR

Article no.	Article name	Dimension							Notes
		ODT		ODC 1	ODC 2	LID	LST	LPA (approx.)	
		mm	in	mm	mm	mm	mm	mm	
L13005074	LOKRING 19/16 NRA Ms 50	16	5/8	23	19	20	58.5	67	*Stabilisation inserts must not be used within an NRA adaptor.
L13005912	LOKRING 19/18 NRA Ms 50	18	-	26	19	20.8	61.5	70	
L13005066	LOKRING 22/12 NRA Ms 50	12	-	18	22	15.5	56.5	66	
L13005069	LOKRING 22/12,7 NRA Ms 50	12	1/2	19	22	15.5	56.5	66	
L13005075	LOKRING 22/16 NRA Ms 50	16	5/8	23	22	20	60.5	69	
L13005078	LOKRING 22/18 NRA Ms 50	18	-	26	22	20.8	63.5	72	
L13005079	LOKRING 22/19 NRA Ms 50	19.05	3/4	26	22	20.8	64.5	73	
L13005090	LOKRING 28/22 NRA Ms 50	22	7/8	30	28	24.6	77.5	87	
L13005077	LOKRING 28,6/16 NRA Ms 50	16	5/8	23	28.6	20	67.5	76	
L13005081	LOKRING 28,6/19 NRA Ms 50	19.05	3/4	16	28.6	21.8	67.5	76	
L13005083	LOKRING 28,6/22 NRA Ms 50	22	7/8	30	28.6	24.6	68.5	78	
L13005926	LOKRING 28,6/28 NRA Ms 50	28	-	39	28.6	29	88	101	
L13005933	LOKRING 35/22 NRA Ms 50	22	7/8	30	34.9	24.6	74.5	84	
L13005934	LOKRING 35/28 NRA Ms 50	28	-	39	34.9	29	91	104	
L13005935	LOKRING 35/28,6 NRA Ms 50	28.57	1 1/8	39	34.9	29	91	104	

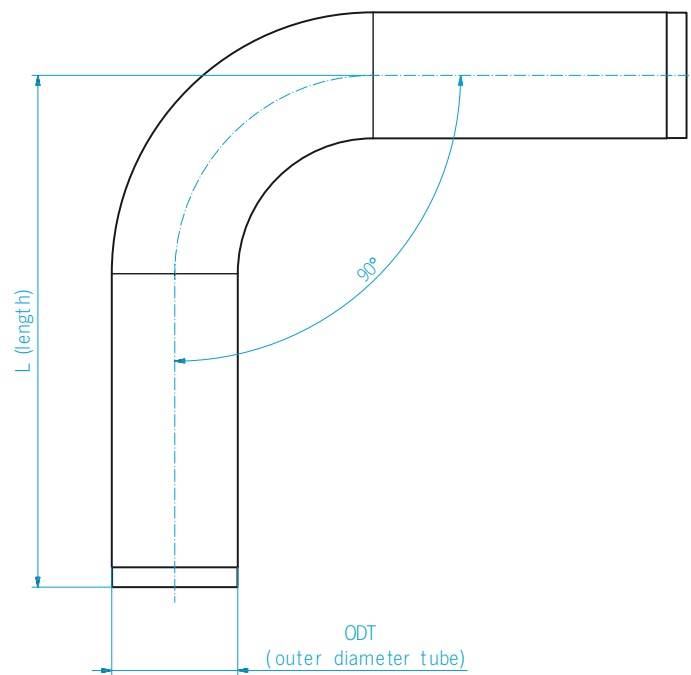
90° COPPER ELBOWS

9.0 PRODUCTS SUITABLE FOR A STANDARD OPERATING PRESSURE RANGE

Introduction: The products in this chapter are suitable for all standard applications. Respect the maximum operating pressure for each product as stated.

9.1 90° COPPER ELBOWS (LOKRING CU 90-EB)

In accordance with EN 12735-1. Max. operating pressure: 50 bar (725 psi)
 Supplied with the necessary stabilisation inserts.



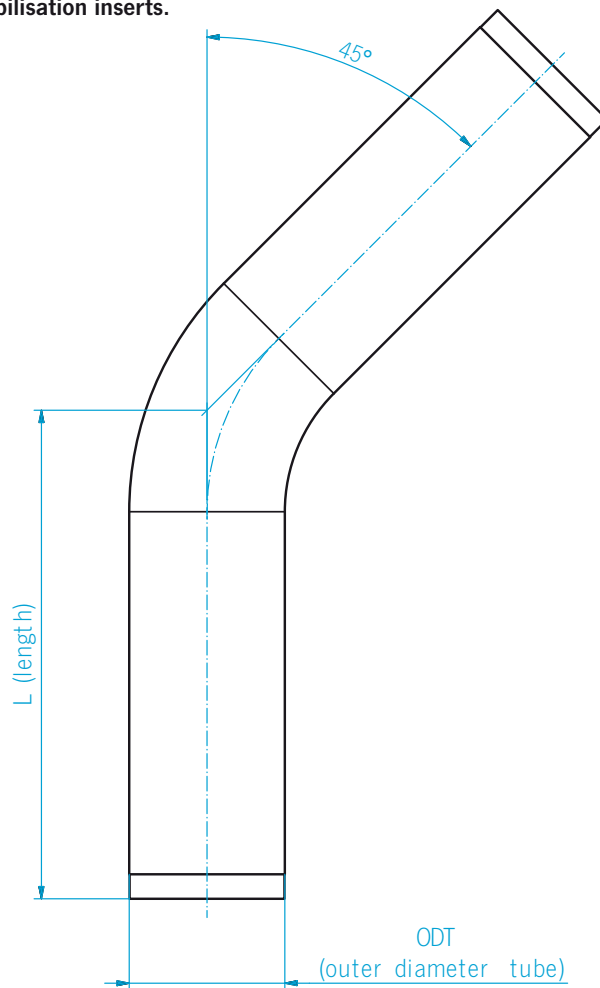
Article no.	Article name	Dimension			Notes
		ODT		LPA (approx.)	
		mm in	mm		
L13005952	LOKRING CU 90-EB 9.53	9.53	3/8	46	
L13005953	LOKRING CU 90-EB 12.7	12.7	1/2	57	
L13005954	LOKRING CU 90-EB 16	16	5/8	64.5	
L13005955	LOKRING CU 90-EB 19	19.05	3/4	73.5	
L13005956	LOKRING CU 90-EB 22	22	7/8	79.5	
L13005957	LOKRING CU 90-EB 28.6	28.57	1 1/8	103.5	
L13005958	LOKRING CU 90-EB 35	35	1 3/8	112.5	
L13006041	LOKRING CU 90-EB 41.3	41.27	1 5/8	138	

45° COPPER ELBOWS

9.2 45° COPPER ELBOWS (LOKRING CU 45-EB)

In accordance with EN 12735-1. Max. operating pressure: 50 bar (725 psi)

Supplied with the necessary stabilisation inserts.

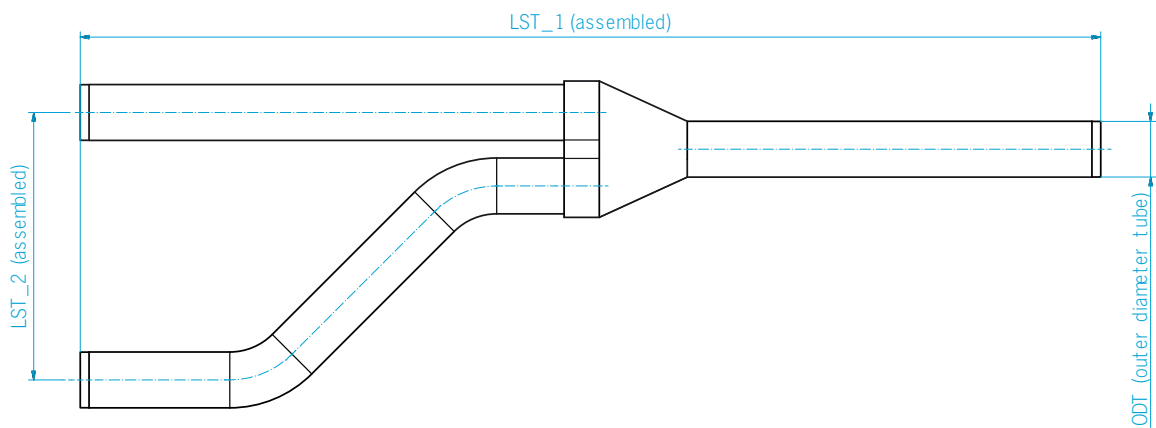


Article no.	Article name	Dimension			Notes
		ODT		LPA (approx.)	
		mm in	mm		
L13005959	LOKRING CU 45-EB 9.53	9.53	3/8	37.5	
L13005960	LOKRING CU 45-EB 12.7	12.7	1/2	45.5	
L13005961	LOKRING CU 45-EB 16	16	5/8	50	
L13005962	LOKRING CU 45-EB 19	19.05	3/4	55	
L13005963	LOKRING CU 45-EB 22	22	7/8	59	
L13005964	LOKRING CU 45-EB 28.6	28.57	1 1/8	77.5	
L13005965	LOKRING CU 45-EB 35	35	1 3/8	83.5	
L13006040	LOKRING CU 45-EB 41.3	41.27	1 5/8	115	

COPPER YP-BRANCH

9.3 COPPER YP-BRANCH (LOKRING CU YP)

In accordance with EN 12735-1. Max. operating pressure: 45 bar (650 psi)
 Supplied with the necessary stabilisation inserts.



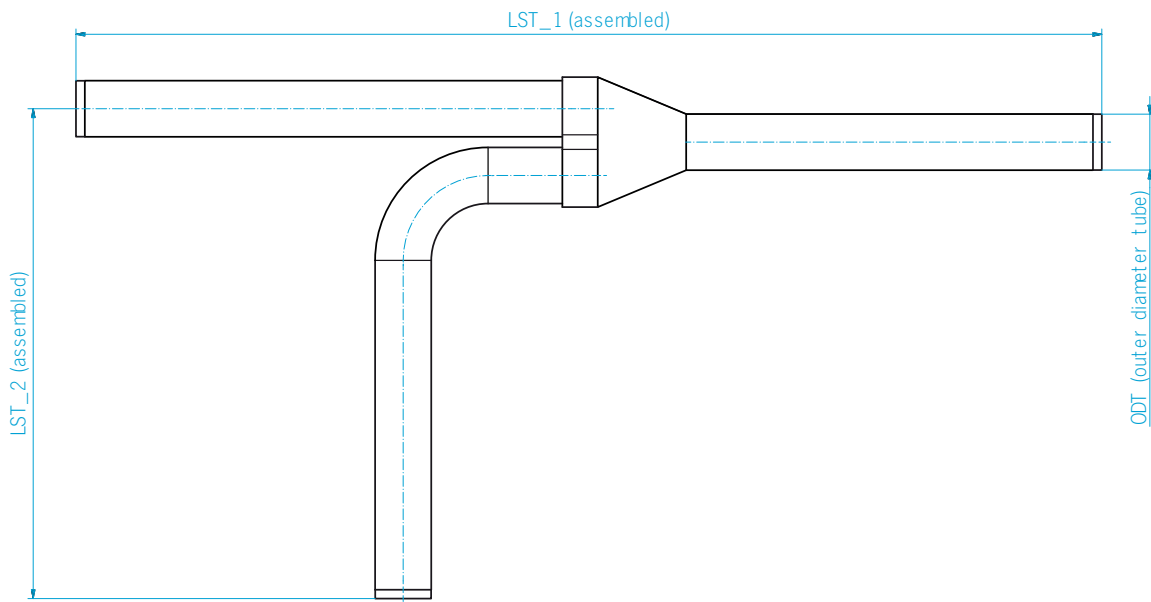
Article no.	Article name	Dimension				Notes
		ODT		LST 1 (approx.)	LST 2 (approx.)	
		mm in	mm	mm		
L12003242	Cu YP 9.53	9.53	3/8	239	57	
L12003243	Cu YP 12.7	12.7	1/2	270	54	
L12003244	Cu YP 16	16	5/8	290	78,5	
L12003245	Cu YP 19	19.05	3/4	280	72,5	
L12003246	Cu YP 22	22	7/8	290	82,5	
L12003247	Cu YP 28.6	28.57	1 1/8	375	67,5	
L12003799	Cu YP 35	35	1 3/8	430	95,5	
L12004042	Cu YP 41.3	41.27	1 5/8	375	100	

COPPER YT-BRANCH

9.4 COPPER YT-BRANCH (LOKRING CU YT)

In accordance with EN 12735-1. Max. operating pressure: 45 bar (650 psi)

Supplied with the necessary stabilisation inserts.



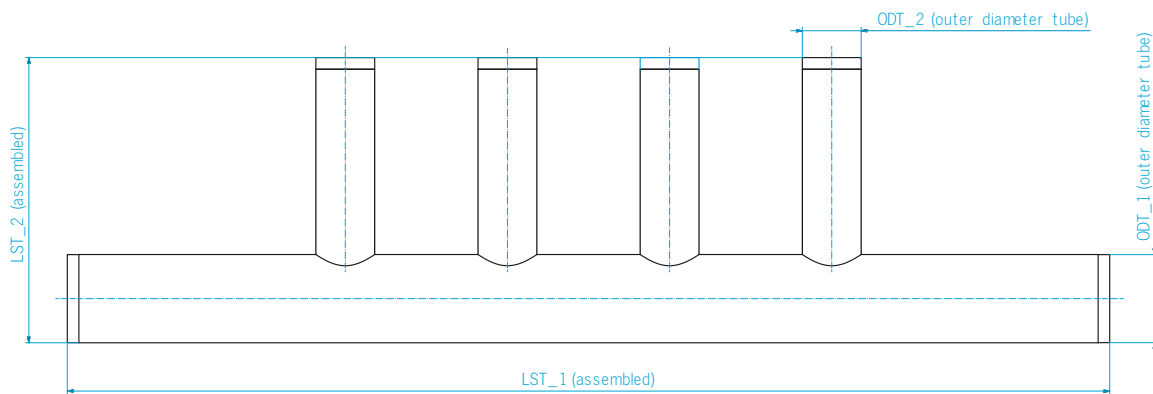
Article no.	Article name	Dimension				Notes
		ODT		LST 1 (approx.)	LST 2 (approx.)	
		mm in	mm	mm		
L12003010	Cu YT 9.53	9.53	3/8	239	104,5	
L12003013	Cu YT 12.7	12.7	1/2	270	122,5	
L12003014	Cu YT 16	16	5/8	290	138,5	
L12003294	Cu YT 19	19.05	3/4	280	127,5	
L12003295	Cu YT 22	22	7/8	315	157,5	
L12003297	Cu YT 28.6	28.57	1 1/8	391	187,5	
L12003298	Cu YT 35	35	1 3/8	477	245,5	
L12004043	Cu YT 41.3	41.27	1 5/8	365	217	

COPPER HEADER

9.5 COPPER HEADER (LOKRING CU HEADER)

In accordance with EN 12735-1. Max. operating pressure: 45 bar (650 psi)

Supplied with the necessary stabilisation inserts.



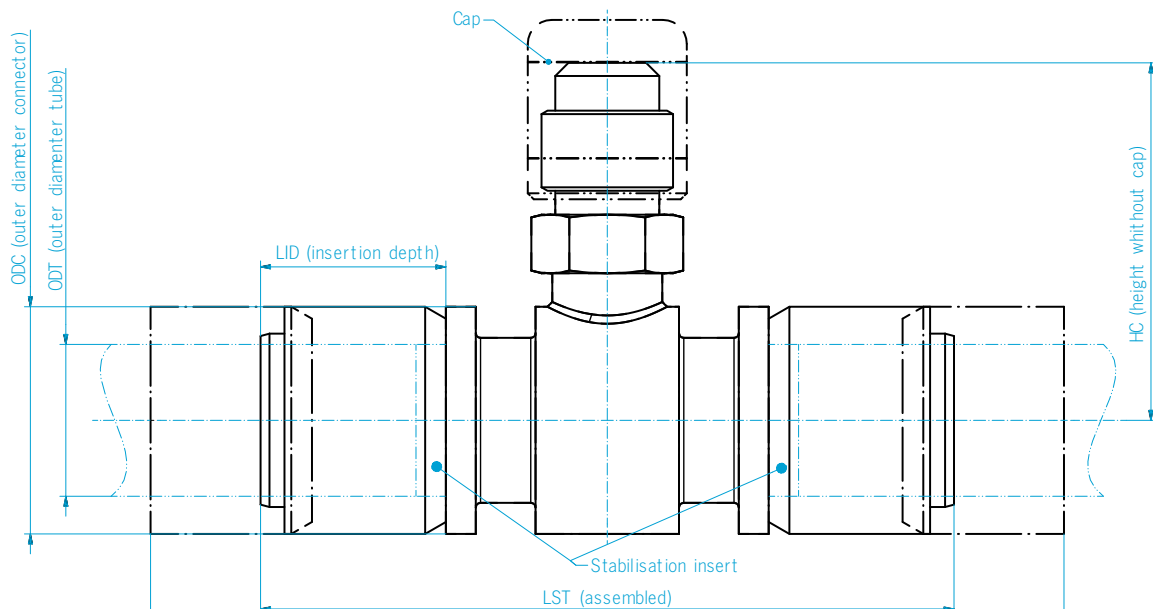
Article no.	Article name	Dimension				Notes	
		ODT 1		ODT 2			LST 1 (approx.)
		mm in		mm in		mm	mm
L13005130	LOKRING Cu Header 12,7-6,35	12.7	1/2	6.35	1/4	205	45.5
L13005131	LOKRING Cu Header 16-9,53	16	5/8	9.53	3/8	205	47
L13005132	LOKRING Cu Header 19-12,7	19.05	3/4	12.7	1/2	225	49
L13005133	LOKRING Cu Header 28,6-16	28.57	1 1/8	16	5/8	255	67.5

BRASS CONNECTOR WITH SCHRADER VALVE

9.6 BRASS CONNECTOR WITH SCHRADER VALVE (LOKRING NK MS SV 50)

Max. operating pressure: 50 bar (725 psi)

Schrader cores are installed but not tightened. It is the installers responsibility to remove the core, lubricate the seal with system compatible oil and torque the Schrader core and cap to proper specification to prevent leaks.



Article no.	Article name	Dimension							Notes
		ODT		ODC	LID	LST	LPA (approx.)	HC (approx.)	
		mm	in	mm	mm	mm	mm	mm	
L13004779	LOKRING 6,35 NK Ms SV 50	6.35	1/4	13	12	52	69.5	27	
L13001504	LOKRING 8 NK Ms SV 50	8	5/16	14	12	52	67.5	27.5	
L13001398	LOKRING 9,53 NK Ms SV 50	9.53	3/8	16	13	52	72.5	28.5	
L13001752	LOKRING 12,7 NK Ms SV 50	12.7	1/2	19	15.5	58	82	30	
L13001324	LOKRING 16 NK Ms SV 50	16	5/8	23	20	69	85.5	32	

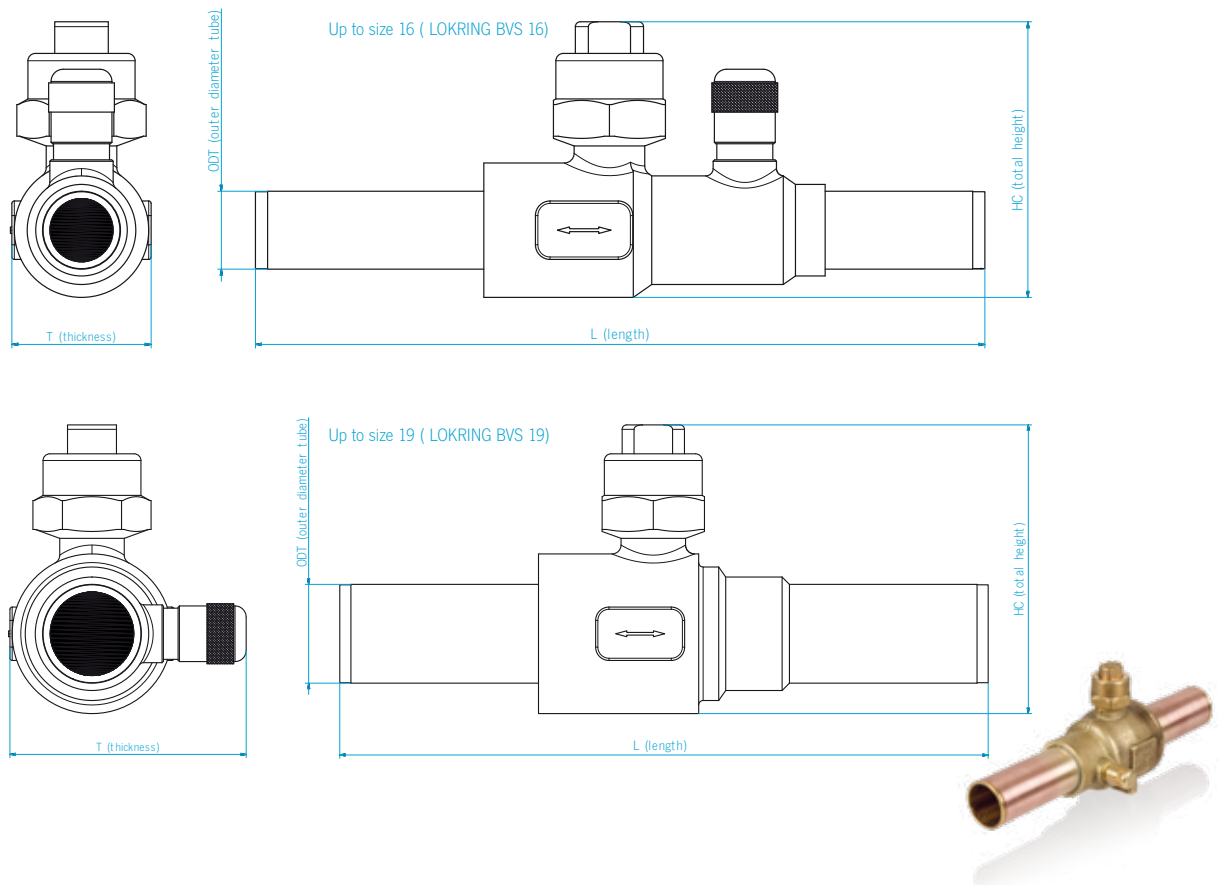
BRASS CONNECTOR WITH BALL VALVE INCL. SCHRADER VALVE

9.7 BRASS CONNECTOR WITH BALL VALVE INCL. SCHRADER VALVE

Max. operating pressure: 50 bar (725 psi)

Schrader cores are installed but not tightened. It is the installers responsibility to remove the core, lubricate the seal with system compatible oil and torque the Schrader core and cap to proper specification to prevent leaks.

Supplied with the necessary stabilisation inserts.



Article no.	Article name	Dimension				Notes	
		ODT		L (approx.)	T (approx.)		HC(approx.)
		mm in	mm	mm	mm		
L13005940	LOKRING BVS 6,35	6.35	1/4	168.5	30	56	
L13005941	LOKRING BVS 9,53	9.53	3/8	161	30	56	
L13005942	LOKRING BVS 12,7	12.7	1/2	168	30	56	
L13005943	LOKRING BVS 16	16	5/8	161	30	56	
L13005944	LOKRING BVS 19	19.05	3/4	161.5	56	68	
L13005945	LOKRING BVS 22	22	7/8	148.5	56	68	
L13005946	LOKRING BVS 28,6	28.57	1 1/8	190	67	80	
L13005947	LOKRING BVS 35	35	1 3/8	204	72	94	

DECLARATION REGARDING PASSED TESTS

10.0 DECLARATION REGARDING PASSED TESTS

VULKAN

**VULKAN
LOKRING**

Declaration regarding passed Tests according EN 16084:2011 (meanwhile replaced by ISO 14903:2017)

In the time frame of: August to October 2014

tests on tube joints according EN 16084:2011 have been performed at or on behalf of:

VULKAN Lokring
Rohrverbindungen GmbH & Co. KG
Heerstraße 66
44653 Herne, Deutschland

The joints consisted of:

copper tube of following sizes:

Ø1/4" (6.35 mm) x 0.8 mm; Ø3/8" (9.53 mm) x 0.8 mm; Ø15.00 mm x 1 mm; Ø5/8" (15.88 mm) x 0.8 mm; Ø22.00 mm x 1.00 mm; Ø1 3/8" (34.92 mm) x 1.3 mm.

joined by:

LOKRING brass connectors with steel rings of appropriate size for applications up to 75 bar operating pressure

using:

LOKPREP LT

As parameters an operating pressure of 75 bar and a temperature range of -40°C to 140°C have been chosen.

The test-plan according to the standard includes:

Tightness-test, preparatory
Vacuum-test*
Pressure-temperature-test
Vibration-test
Freezing-test
Pressure-test
Fatigue-test
Tightness-test, terminatory

*The procedure of the vacuum-test according to the parameters of the standard is controversial. Corresponding comments have been given to the standardization organization and have been confirmed by a member of the corresponding workgroup. A revision of the standard is planned. Due to this the vacuum-test is omitted until further notice.

VULKAN Lokring Rohrverbindungen GmbH & Co .KG assures that all test are performed carefully and according the actual interpretation of the standard and that the involved equipment is adequate for the performed tests.

The tested samples after running through the load tests have met the requirements of tightness control level A1 (hermetic joints, max. $7.5 \cdot 10^{-6}$ mbar·l/s Helium at 10 bar and 20°C).

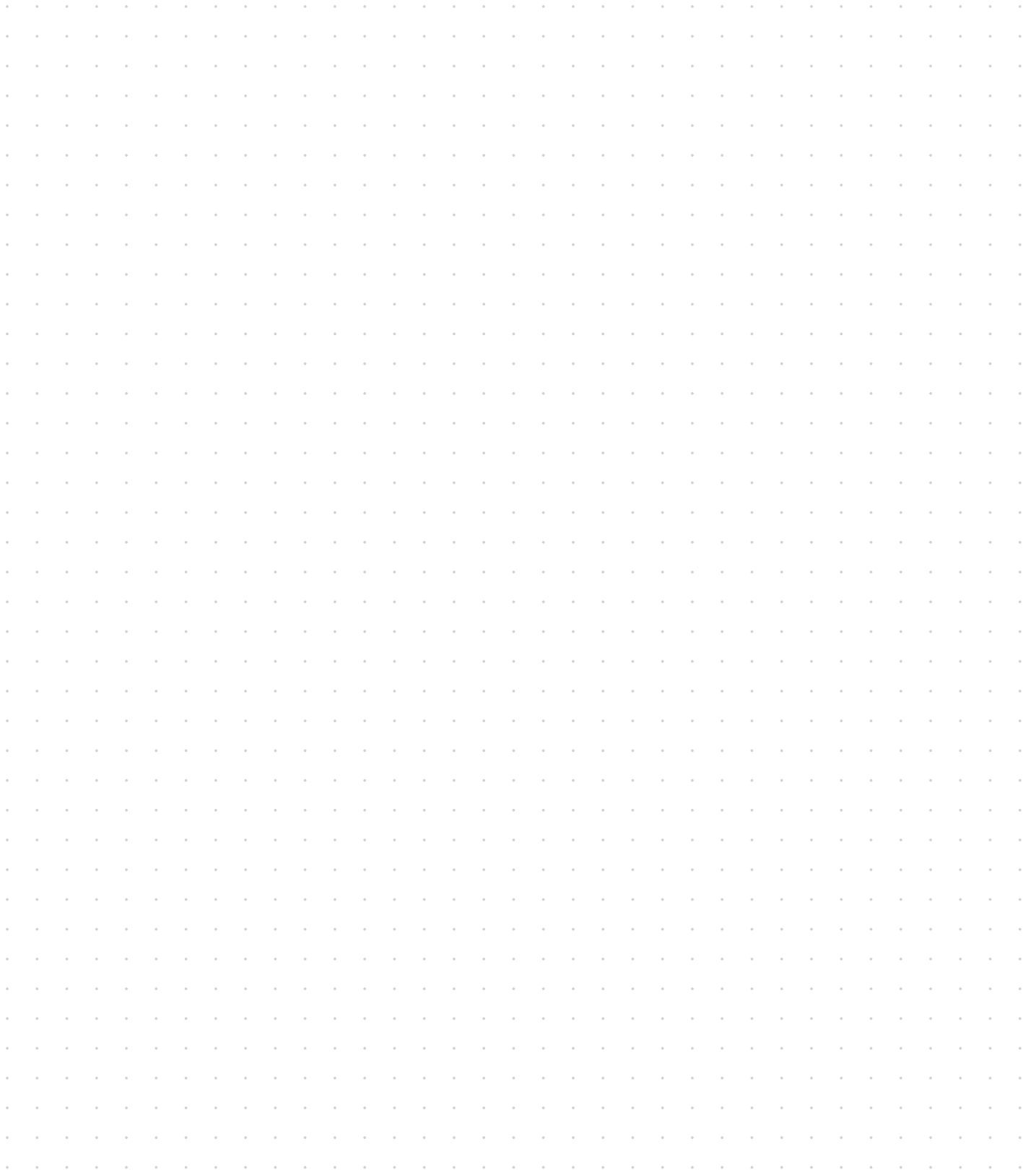
01.03.2018, Thome
Date Development Manager

NOTES

A large grid of small dots for taking notes, consisting of 20 columns and 30 rows of dots.

NOTES

A large grid of small dots for taking notes, consisting of 20 columns and 30 rows of dots.

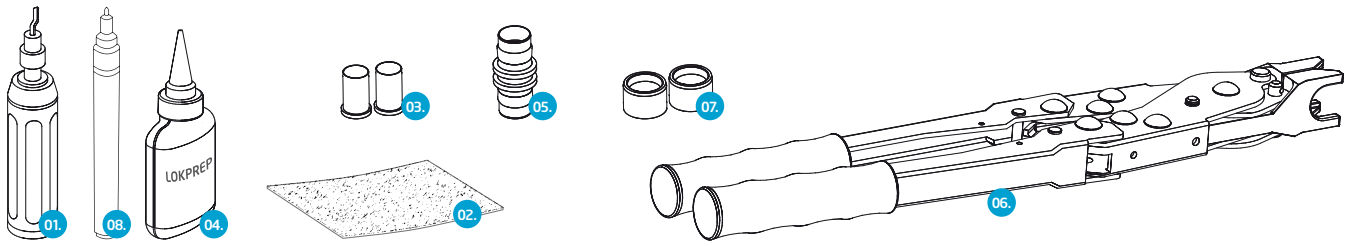




ASSEMBLY INSTRUCTIONS

LOKRING® tube connection assembly version 50

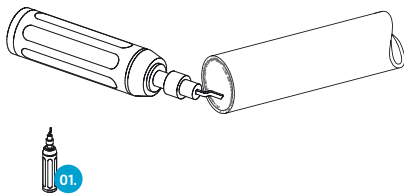
(The assembly version is determined on the basis of the last two figures in the article name. Example: LOKRING 6 NK Ms 50)



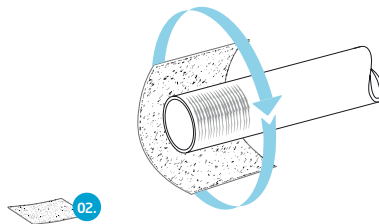
01. Tube deburrer 02. Abrasive mat 03. Stabilisation inserts 04. LOKPREP 05. Joint 06. Hand assembly tool 07. LOKRINGs 08. Permanent marker



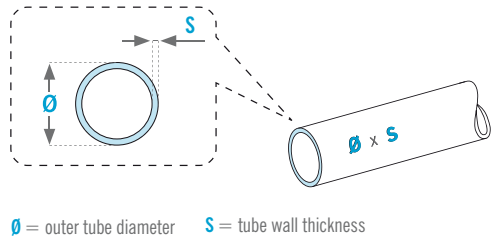
Deburr the tube end all the way round using a tube deburrer (01). Use different deburring tools for different materials.



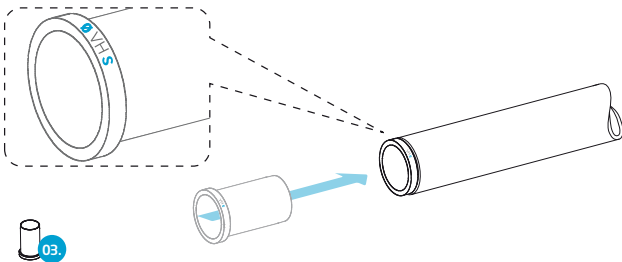
Clean the tube end by rubbing it in rotary movements using the abrasive mat (02).



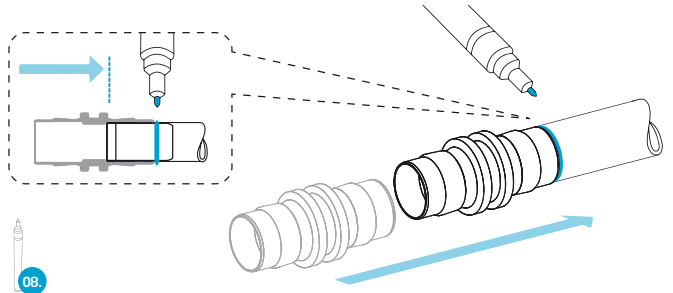
Determine the tube wall thickness S and the outer tube diameter \emptyset on the basis of tube coding or using a slide gauge.



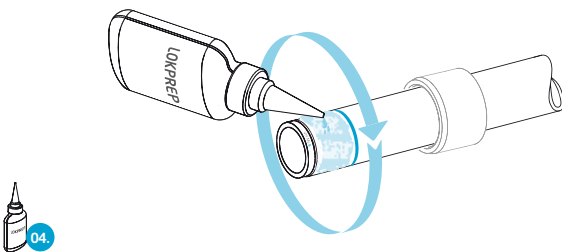
Insert a stabilisation insert (03) suitable for the material, the outer tube diameter \emptyset and tube wall thickness S . Stabilisation inserts may not be necessary in case of use with refrigerants with an operating pressure lower than 25 bar (e.g. R134a car A/C systems or refrigerator cabinets).



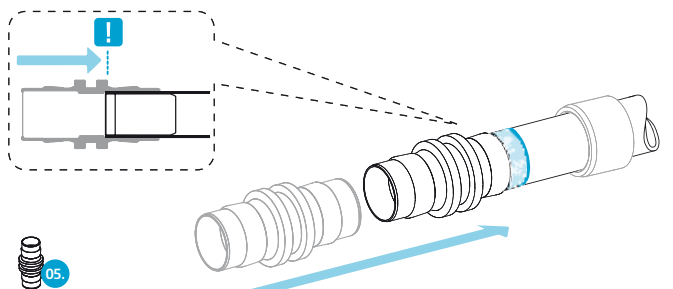
Before applying the LOKPREP (04), push the connecting joint onto the tube until you can feel the inner stop. Mark (08) the correct insertion depth on the tube.



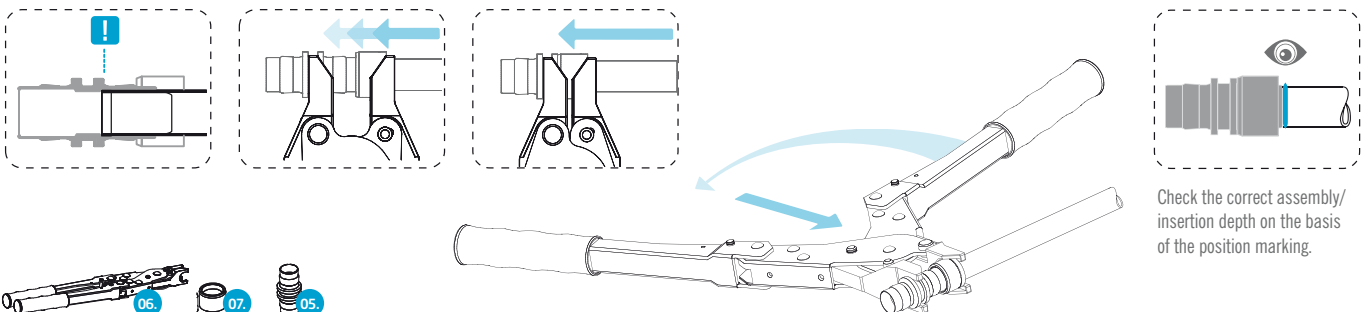
Choose the correct LOKPREP for the tube material and the ambient temperature. Apply LOKPREP (04) all the way round the sealing area of the tube end. Respect the correct curing time of the LOKPREP.



Push the connection joint (05) onto the tube until it reaches the inner stop **!**

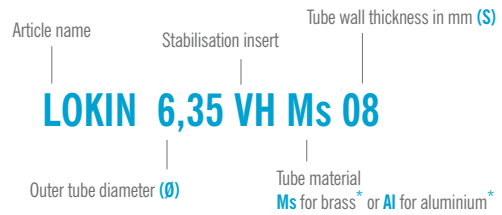
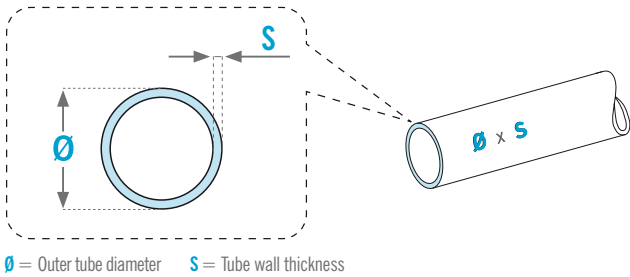


Put the assembly jaws (06) in place behind the LOKRING (07) and the assembly stop of the joint (05). Press the tube connection together. **!** Do not change the insertion depth of the tube and connecting joint. Press the tube connection until the LOKRING (07) is flush to the assembly stop of the joint (05).



CHOOSING THE STABILISATION INSERT

LOKRING® tube connection assembly version 50

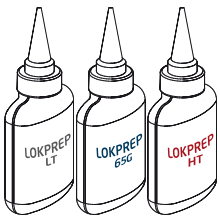


* Use Ms stabilisation inserts for copper tube and Al stabilisation inserts for aluminium tube.

Note: Stabilisation inserts must not be used inside an NRA adaptor or inside the stainless steel tube of a EURO flare-fitting.

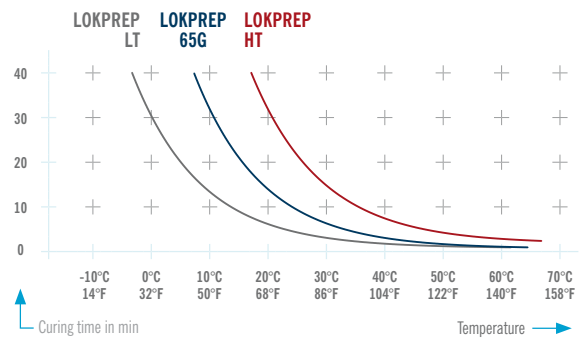
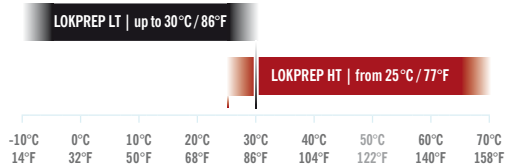
CHOOSING THE LOKPREP

LOKRING® tube connection assembly version 50



- Use an **aluminium LOKRING® connector** and **LOKPREP 65G** for all connections from aluminium to aluminium or aluminium to copper. Always use a heat shrink sleeve for connections from aluminium to copper in order to protect the connection against corrosion.
- Use a **brass LOKRING® connector** and **LOKPREP LT** or **LOKPREP HT** for all connections from copper to copper.

! The following diagram shows the suitable temperature ranges for LOKPREP LT and LOKPREP HT.



EXAMPLES AS ASSEMBLY AID

LOKRING® tube connection assembly version 50

! **Wrong:** LOKRING has not been pressed through to the assembly stop. **Right:** LOKRING has been pressed flush to the assembly stop.

! **Wrong:** Stabilisation insert is missing. **Right:** Correct stabilisation insert is inserted.

! **Wrong:** Assembly jaws are not set in place correctly. **Right:** Assembly jaws are set flush correctly.

! **Wrong:** The tube is not pushed in as far as the inner stop. **Right:** Push the tube in until you can feel the inner stop.

ONLINE-SERVICE

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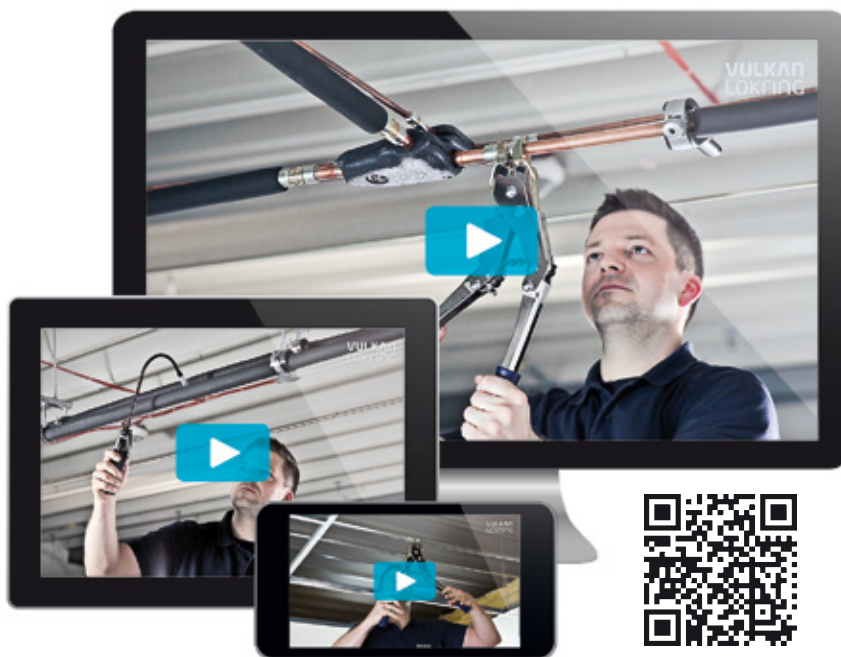
VALIDITY CLAUSE

The LOKRING® tube connection technology represents a proven method of producing hermetically sealed metal-to-metal tube connections. The LOKRING® tube connections are mainly used in the refrigeration and air conditioning industries. The use of LOKRING® tube connection technology in other fields is to be discussed with VULKAN Lokring. VULKAN Lokring as the supplier is responsible for the qualitative delivery of the tube connections and tools which are ordered.

The purchaser is responsible for the use of the LOKRING® tube connections and tools as directed. The assembly has to be done accordingly to the instructions and exclusively with original LOKRING® parts. The present submittal shall replace all previous editions. The data contained in this submittal refers to the valid state of affairs in time of the copy deadline. Any changes due to technical progress are reserved.

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