

1.6 Tri-Clover® UltraPure ISO 2037

The Installation material in this section is manufactured to meet Tri-Clover® UltraPure ISO 2037 (25 - 101.6) and DIN 11850 (DN10 - DN15) tube dimensions



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Keep Your Process Ultra Clean

Tri-Clover® UltraPure ISO 2037

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Application

Alfa Laval Tri-Clover® UltraPure ISO 2037 tubes & fittings are the perfect choice for ultra pure processes within the demanding pharmaceutical, biotech and personal care industries.

Standard design

UltraPure ISO 2037 tubes & fittings are manufactured to meet the ISO 2037 dimension standard for the sizes 25 - 101.6 mm.

Materials

Product wetted steel parts are available in 1.4404 (316L) stainless steel
Elastomers are available in EPDM, FPM and PTFE



Chemical composition in accordance with DIN EN 10088-1

Steel designation		% by mass								
Number	Name	C	Si	Mn	P	S	N	Cr	Mo	Ni
1.4404	X2CrNiMo17-12-2	≤ 0.030	≤ 1.00	≤ 2.0	≤ 0.045	≤ 0.015 ^(b)	≤ 0.11	16.5 to 18.5	2.00 to 2.50	10.0 to 13.0 ^(c)

b) For bars, rods, wire, sections, bright products and the relevant semi-finished products, a maximum content of 0,030 % S applies.

c) Where for special reasons, e. g. hot workability for the fabrication of seamless tubes where it is necessary to minimize the delta ferrite content, or with the aim of low magnetic permeability, the maximum Ni content may be increased by 1,50 % (m/m) for 1.4404.

All stainless steel parts are in accordance with DF class 1 (≤3% delta ferrite content)

All tubes are bright annealed, pickled and passivated in accordance with DIN EN 10217-7 W2Rb.

Elastomer properties

	EPDM	FPM	PTFE
FDA (CFR 21: 177.2600)	Yes	Yes	Yes
USP Class VI certified	Yes	Yes	No
Recommended operating temperature, °C	-10°C to +140°C	-10°C to +180°C	-10°C to +220°C
Resistance			
Steam resistance	Yes	No	Yes
Alkali resistance	Yes	No	Yes
Resistance to fats/oils	No	Yes	Yes
Ozone resistance	Yes	Yes	Yes



Dimensions

Dimensions and tolerances for 25 - 101.6 mm fittings are in accordance with ISO 2037.

Dimension	25	38	51	63.5	76.1	101.6
Outside diameter (mm)	25.0	38.0	51.0	63.5	76.1	101.6
Inside diameter (mm)	22.6	35.6	48.6	60.3	72.9	97.6
Wall thickness (mm)	1.2	1.2	1.2	1.6	1.6	2.0

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Internal and external surface finish

Hygiene class ^a	Surface texture		
	Internal surface ^b	Seam internal	External
H4o	Ra < 0.40 µm	Ra < 0.40 µm	Ra < 0.80 µm
H4			
HE4o ^c			
HE4 ^c			

a) Tubular fittings with external surface of Ra<0.80 µm are marked with an o (e.g. H4o), Machined fittings with external surface of Ra<0.80 µm are marked without an o (e.g. H4)

b) Including welded and bended area

c) Electro polished in accordance with standardized procedures involving the removal of at least 20 µm.

Fitting pressure rating

Pressure ratings in bar	
Bends, Tees, Reducers (80/200°C)	25/15
Clamp unions (80/200°C)	25/15

Tube pressure rating

Permissible operating pressures at room temperature 20°C

Dimension	25	38	51	63.5	76.1	101.6
Permissible operating pressures in bar for tubes						
ISO 2037	195	126	94	105	84	82

Other standards fulfilments

- All tubes and fittings are in accordance with the European pressure vessel directive (PED Directive 97/23/EC)
- All plastic protection end caps are in compliance to REACH (European Community Regulation on chemicals and their safe use)

Delivery condition

To ensure easy identification and immediate use, all Tri-Clover® UltraPure ISO 2037 tubes & fittings are delivered as follows:

- All tubes are delivered in lengths of 6 meters (0 to + 10 mm).
- Weld ends are delivered with straight-cut ends, free from burrs and breaks suitable for automatic welding.
- All fittings are individually marked with heat number, material, surface finish designation, and dimension.
- Internally cleaned and free from oils, grease, particulates, grinding compounds or electrolytes.
- Protected with end caps and individually dry-wrapped in plastic bags.
- Delivered with MTR (3.1) traceability certificate.

Please contact Alfa Laval for further information regarding ordering.

Tubes of manufacturing lengths of approx 6 meters
 Product code: 25 - 101.6 mm : 5115

Material: 1.4404

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Material Item No.	PPL EUR pr. meter	Material Item No.	PPL EUR	Size	Dimension (mm)	
H4o		HE4o		mm	OD/ID x t	
9613851403	*	9613851412	*	25	25/22.6 x 1.2	
9613851405	*	9613851414	*	38	38/35.6 x 1.2	
9613851406	*	9613851415	*	51	51/48.6 x 1.2	
9613851407	*	9613851416	*	63.5	63.5/60.3 x 1.6	
9613851408	*	9613851417	*	76.1	76.1/72.9 x 1.6	
9613851409	*	9613851418	*	101.6	101.6/97.6 x 2.0	

* PPL prices are updated monthly

Please contact your Alfa Laval contact person for further information.

Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size	Dimension (mm)			
H4o		HE4o		mm	OD/ID x t	L	R	Bend 90° - (R = 1.5 x D)
9613439903	25.9	9613439911	33.97	25	25/22.6 x 1.2	65.0	37.5	
9613439904	28.25	9613439912	36.46	38	38/35.6 x 1.2	85.0	57.0	
9613439905	31.69	9613439913	41.18	51	51/48.6 x 1.2	110.0	76.5	
9613439906	47.79	9613439914	61.22	63.5	63.5/60.3 x 1.6	135.0	95.3	
9613439907	65.98	9613439915	134.7	76.1	76.1/72.9 x 1.6	155.0	114.2	
9613439908	114.28	9613439916	82.39	101.6	101.6/97.6 x 2.0	195.0	152.5	
						L ₁	L ₂	
9613440003	28.53	9613440011	36.18	25	25/22.6 x 1.2	70.0	47.0	
9613440004	31.01	9613440012	41.18	38	38/35.6 x 1.2	87.0	63.0	
9613440005	33.39	9613440013	49	51	51/48.6 x 1.2	119.5	86.5	
9613440006	38.41	9613440014	56.78	63.5	63.5/60.3 x 1.6	136.0	101.0	
9613440007	45.65	9613440015	70.35	76.1	76.1/72.1 x 1.6	157.0	119.0	
9613440008	80.15	9613440016	91.86	101.6	101.6/97.6 x 2.0	226.5	166.0	

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Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size	Dimension (mm)		
H4		HE4		mm	OD/ID x t	L ₁	Tee
9613440103	36.58	9613440111	46.55	25	25/22.6 x 1.2	55.0	
9613440104	41.57	9613440112	49.05	38	38/35.6 x 1.2	70.0	
9613440105	42.29	9613440113	53.28	51	51/48.6 x 1.2	82.0	
9613440106	56.33	9613440114	68.58	63.5	63.5/60.3 x 1.6	105.0	
9613440107	84.49	9613440115	96.75	76.1	76.1/72.1 x 1.6	110.0	
9613440108	123.07	9613440116	137.18	101.6	101.6/97.6 x 2.0	150.0	

NOTE: For pressure and surface, please see product leaflet.

Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size			Dimension (mm)		Reducing Tees
					OD1/ID1 x t1	OD2/ID2 x t2	L1	L2	
H4o		HE4o		mm			mm	mm	
9613470101	55.98	9613470116	67.68	38/25	38/35.6 x 1.2	25/22.6 x 1.2	70	60	
9613470102	64.13	9613470117	85	51/25	51/48.6 x 1.2	25/22.6 x 1.2	82	70	
9613470103	64.13	9613470118	85	51/38	51/48.6 x 1.2	38/35.6 x 1.2	82	70	
9613470104	79.06	9613470119	106.88	63.5/25	63.5/60.3 x 1.6	25/22.6 x 1.2	105	70	
9613470105	79.06	9613470120	106.88	63.5/38	63.5/60.3 x 1.6	38/35.6 x 1.2	105	70	
9613470106	81.43	9613470121	106.88	63.5/51	63.5/60.3 x 1.6	51/48.6 x 1.2	105	82	

Product code: 5073

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Item No.	PPL EUR	Item No.	PPL EUR	Size	Dimension (mm)			
					mm	OD ₁ /ID ₁ x t ₁	OD ₂ /ID ₂ x t ₂	
								Concentric reducer
9613440201	48.99	9613440216	55.32	38/25	38/35.6x1.2	25/22.6x1.2	100	
9613440202	56.42	9613440217	62.23	51/25	51/48.6x1.2	25/22.6x1.2	150	
9613440203	49.4	9613440218	55.82	51/38	51/48.6x1.2	38/35.6x1.2	100	
9613440204	55.42	9613440219	66.2	63.5/25	63.5/60.3x1.6	25/22.6x1.2	202	
9613440205	61.47	9613440220	72.61	63.5/38	63.5/60.3x1.6	38/35.6x1.2	150	
9613440206	54.33	9613440221	64.21	63.5/51	63.5/60.3x1.6	51/48.6x1.2	100	
								Eccentric reducer
9613440301	5478.57	9613440316	6196.48	38/25	38/35.6x1.2	25/22.6x1.2	60	
9613440302	7094.64	9613440317	7903.19	51/25	51/48.6x1.2	25/22.6x1.2	60	
9613440303	6825.81	9613440318	7903.19	51/38	51/48.6x1.2	38/35.6x1.2	80	
9613440304	5478.57	9613440319	6287.12	63.5/25	63.5/60.3x1.6	25/22.6x1.2	202	
9613440305	6825.81	9613440320	7903.19	63.5/38	63.5/60.3x1.6	38/35.6x1.2	150	
9613440306	6601.27	9613440321	7409.82	63.5/51	63.5/60.3x1.6	51/48.6x1.2	100	

NOTE: For pressure and surface, please see product leaflet.
Wall thickness is not according to ISO 2037.

Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size mm	Dimension (mm)			Clamp ferrule
H4		HE4			OD/ID x t	A	B	
9613440403	10.56	9613440411	19.78	25	25/22.6 x 1.20	50.5	28.6	<p>TD 312-010</p>
9613440404	11.59	9613440412	20.45	38	38/35.6 x 1.20	50.5	28.6	
9613440405	12.2	9613440413	22.37	51	51/48.6 x 1.20	64.0	28.6	
9613440406	17.4	9613440414	28.94	63.5	63.5/60.3 x 1.60	77.5	28.6	
9613440407	25.64	9613440415	36.66	76.1	76.1/72.9 x 1.60	91.0	57.2	
9613440408	59.3	9613440416	68.33	101.6	101.6/97.6 x 2.0	119.0	57.2	

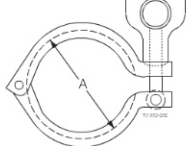
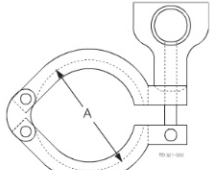
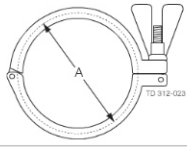
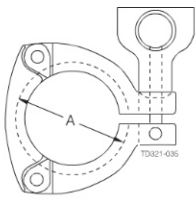
Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size mm	Dimension (mm)		Blank
H4		HE4			A	B	
9613444403	27.81	9613444411	77.25	25-38	50.5	6.35	<p>TD 312-012</p>
9613444404	30.9	9613444412	82.4	51	64.0	6.35	
9613444405	37.11	9613444413	86.4	63.5	77.5	6.35	
9613444406	55.63	9613444414	96.34	76.1	91.0	6.35	
9613444408	97.6	9613444416	110.19	101.6	119.0	8.00	

Product code: Blank /Seal ring 25 - 101.6 mm: 5054

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Item No.	PPL EUR	Item No.	PPL EUR	Size	Dimension (mm)			
EPDM		FPM		mm	A	B	D	Seal ring
9611991358	2.8	9611991890	30.77	25	52.7	5.5	22.8	
9611991359	2.8	9611991891	30.77	38	52.7	5.5	35.8	
9611991360	3.25	9611991892	35.58	51	66.2	5.5	48.8	
9611991361	3.55	9611991893	51.03	63.5	79.7	5.5	60.5	
9611991362	3.98	9611991894	61.39	76.1	93.2	5.5	73.1	
9611991363	7.23	9611991895	75.45	101.6	121.2	5.5	97.8	
PTFE				mm	A	B	D	Seal ring - (Modified ISO 2852, type A)
9611991403	15.27			25	52.7	5.1	22.6	
9611991404	16.59			38	52.7	5.1	35.6	
9611991405	18.2			51	66.2	5.1	48.6	
9611991406	19.17			63.5	79.7	5.1	60.3	
9611991407	30.49			76.1	93.2	5.1	72.9	
9611991408	30.83			101.6	121.2	5.1	97.6	

Product code: 5049

Material	PPL	Size		
Item No.	EUR		A	
1.4301 (304)		mm		A13MHM - Clamp ring
211053	25.78	25/38	54.0	
211054	31.41	51	67.1	
211055	36.37	63.5	81.0	
211056	39.55	76.1	94.5	
211057	48.01	101.6	122.2	
				13MHHM Clamp ring
212195	35.3	25/38	54.0	
212196	39.9	51	67.5	
212197	48.73	63.5	81.0	
212198	52.96	76.1	94.5	
212199	64.25	101.6	122.6	
				Clamp ring, wingnut
9611994453	29.8	25/38	54.0	
9611994454	36.3	51	67.5	
9611994455	49.45	63.5	81.0	
9611994456	56.35	76.1	94.5	
9611994457	63.86	101.6	122.6	
				13MHHS
304				
211283	48.36	25/38	54.0	
211284	54.73	51	67.5	
211286	64.95	63.5	81.0	
211287	76.27	76.1	94.5	
211289	92.51	101.6	122.6	

NOTE: For pressure and surface, please see product leaflet.

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Material Item No.	PPL EUR	Material Item No.	PPL EUR	Size mm		Dimension (mm)			Use Points
				Main port	Outlet port	A	B	C	
H4o		HE4o							
9614060903	134.52	9614060937	163.54	25 x 1.2	25 x 1.2	89	117	125	
9614060906	134.52	9614060940	162.93	38 x 1.2	25 x 1.2	116	153	157.5	
9614060907	134.52	9614060941	162.93	38 x 1.2	38 x 1.2	116	153	157.5	
9614060910	206.3	9614060944	250.32	51 x 1.2	25 x 1.2	130.5	174	178.5	
9614060911	206.3	9614060945	250.32	51 x 1.2	38 x 1.2	130.5	174	178.5	
9614060912	206.3	9614060946	250.32	51 x 1.2	51 x 1.2	130.5	174	178.5	
9614060915	267.25	9614060949	331.3	63.5 x 1.6	25 x 1.2	130	190.6	184.5	
9614060916	267.25	9614060950	331.3	63.5 x 1.6	38 x 1.2	130	190.6	184.5	
9614060917	274.51	9614060951	322.4	63.5 x 1.6	51 x 1.2	130	190.6	184.5	
9614060918	274.51	9614060952	322.4	63.5 x 1.6	63.5 x 1.6	130	190.6	184.5	