ConfitPRESS

STAINLESS STEEL PIPE & FITTINGS

AISI 304 , 316L
15-168.3mm

E-mail: info@pressfitting.com.tr
Mobil/WhatsApp: +90 533 662 97 13
Website: https://pressfitting.com.tr

1.2 Quality & Certification

ISO 9001

ISO 14001

ISO 45001

Our highly trained staff have the expertise and experience to manage projects of any size across a range of sectors such as commercial and residential construction, oil and gas, industrial, mechanical services, mining, health, education, marine, defense and government sectors.

ConfitPRESS inox press fittings are tested and certified by independent national certification bodies confirming their suitability and reliability for water applications. ConfitPRESS is certified by the following bodies: CE, PED, ASME.

ASME

CE&PED

1.3 Warranty

ConfitPRESS

ConfitPRESS Stainless Press tube and fittings are guaranteed against manufacturing defects for a period of 10 YEARS when installed and used in accordance of the Worldwide. Plumbing code and or the LOCAL or STATE Authority and when installed by a licensed PLUMBER.

ConfitPRESS is available in sizes DN15 through to DN150 with applications that are extensive due to a range of O-rings capable of use within; heavy industry, chemical, high temperature, water or gas in either 304 and 316L grade depending on system parameters.

ConfitPRESS Stainless tube complies with the standards as set out in ISO9001 Stainless steel pipes and tubes for pressure applications.

ConfitPRESS Stainless Press fittings complies with the standards as set out in Water Supply and gas systems - Metallic fittings and end connectors.

1.4 Key Features & Benefits

QUICK & EASY TO INSTALL

- Fast & Clean to install
- Lower installation hours on site
- Reduced installation costs

OH&S FRIENDLY

- No ignition – spark
- No open flame
- No risk to others

FLAME FREE, HEAT FREE, SAFE CONNECTIONS

- No welding required
- No Hot Works Permits required
- Ideal for use in Retrofit Projects

ENVIRONMENTALLY FRIENDLY WHEN INSTALLING

- No smoke
- No dangerous gases
- No toxic substances

NO CONSUMABLES

- No welding gas
- No oxy acetylene
- No Silver solder
- No Welding wires
- No cleaning products

PERFORMANCE CONSISTENCY

- Uniform connection throughout installation
- Removes issues of welding and joint imperfections
- Simple, quick and reliable installation process
- Secure, permanent joint with encapsulated O-ring

EXTENSIVE RANGE

- Tube sizes from 15mm to 168mm
- Fitting sizes from 15mm to 168mm

EASY TO USE TOOLING

- Portable, user friendly tooling
- Compact battery operation

PERFORMANCE

- Up to 16 bar working pressure rating
- Temperature rated to 200 degrees C
- Leak Detection O-rings up to 54mm

MAINTENANCE FREE

- Long service life

2. Design of Press-Fit Systems

2.1 Material Composition

316L CHEMICAL COMPOSITION		
ELEMENT		PERCENT BY WEIGHT
C	Carbon	0.030 max
Mn	Manganese	2.00 max
Si	Silicon	0.75 max
Cr	Chromium	16.00 – 18.00
Ni	Nickel	10.00 – 14.00
Mo	Molybdenum	2.00 – 3.00
P	Phosphorus	0.045 max
S	Sulfur	0.030 max
Fe	Iron	Bal.

304 CHEMICAL COMPOSITION		
ELEMENT		PERCENT BY WEIGHT
C	Carbon	0.030 max
Mn	Manganese	2.00 max
Si	Phosphorus	0.045 max
Cr	Sulfur	0.030 max
Ni	Silicon	0.75 max
Mo	Chromium	18.00 – 20.00
P	Nickel	8.00 – 12.00
S	Nitrogen	0.10 max
Fe	Iron	Bal.

2.2 Tube Compatibility

ConfitPRESS Stainless Steel tube has a ISO license/certificate and is compliant to plumbing and drainage products - Stainless Steel pipes and tubes for pressure application and Testing of products for use in contact with drinking water.

ConfitPRESS Stainless Steel tube combines low carbon, at less than 0.03%, with a minimum molybdenum content of 2%-3% for improved corrosion resistance. Low carbon, austenitic stainless steel is roll formed and then longitudinally plasma-inert gas-welded to precisely form the tubes. ConfitPRESS Stainless tubes are bright annealed and solution heat-treated, resulting in an attractive,hygienic and durable product.

Tube Specification Table

ConfitPRESS STAINLESS TUBE CHART 316L

CODE	SIZE	DRY WEIGHT KG/M	WET WEIGHT, KG/M	VOLUME l/m	LENGTH	MASS PER 6M	WALL THICKNESS
TP1510-DIN-316L	15mm	0.351	0.484	0.133	6M	2.11 KG	1.5mm
TP2215-DIN-316L	22mm	0.625	0.928	0.302	6M	3.75 KG	1.5mm
TP2815-DIN-316L	28mm	0.805	1.321	0.515	6M	4.83 KG	1.5mm
TP3515-DIN-316L	35mm	1.258	2.064	0.804	6M	7.55 KG	1.5mm
TP4215-DIN-316L	42mm	1.521	2.718	1.195	6M	9.13 KG	1.5mm
TP5415-DIN-316L	54mm	1.972	4.017	2.043	6M	11.83 KG	1.5mm
TP7620-DIN-316L	76.1mm	3.711	7.798	4.083	6M	22.27 KG	1.5mm
TP8920-DIN-316L	108mm	5.308	13.810	8.495	6M	31.85 KG	2.0mm
TP10820-DIN-316L	168mm	8.400	29.600	12.894	6M	50.30 KG	2.0mm

ConfitPRESS STAINLESS TUBE CHART 304

CODE	SIZE	DRY WEIGHT KG/M	WET WEIGHT, KG/M	VOLUME l/m	LENGTH	MASS PER 6M	WALL THICKNESS
TP1510-DIN-304	15mm	0.351	0.484	0.133	6M	2.11 KG	1.5mm
TP2215-DIN-304	22mm	0.625	0.928	0.302	6M	3.75 KG	1.5mm
TP2815-DIN-304	28mm	0.805	1.321	0.515	6M	4.83 KG	1.5mm
TP3515-DIN-304	35mm	1.258	2.064	0.804	6M	7.55 KG	1.5mm
TP4215-DIN-304	42mm	1.521	2.718	1.195	6M	9.13 KG	1.5mm
TP5415-DIN-304	54mm	1.972	4.017	2.043	6M	11.83 KG	1.5mm
TP7620-DIN-304	76.1mm	3.711	7.798	4.083	6M	22.27 KG	1.5mm
TP8920-DIN-304	108mm	5.308	13.810	8.495	6M	31.85 KG	2.0mm

2.3 The Strength of Press-Fit

What is Press-Fit?

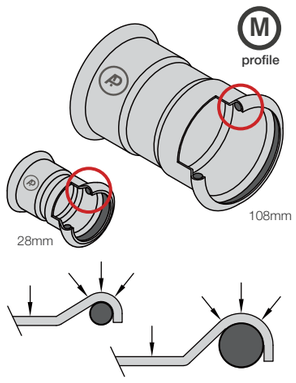
A quick, flame free and consistent process using a press tool fitted with matching profiled jaw or collar to form a permanent and consistent join between tube and fitting.

The Strength of Press-Fit
It's All In The Join

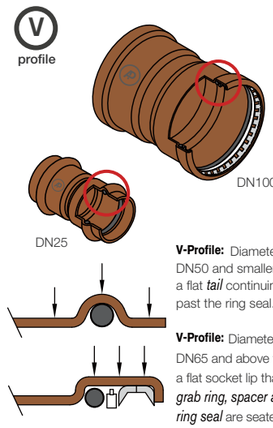
He socket on each press fitting is fitted with a rubber ring seal, engineered to provide both a strong and sealed join after being pressed with a press tool.

By using a calibrated press tool, each join is permanent and uniform as the join is deformed in two ways; the engineered shaping of the fitting against the tube to provide strength to the join as the primary seal plus, the deformation of the rubber ring seal to form the secondary seal in the encapsulated pocket between the fitting and tube.

The press jaw (or collar) determines the shape and it is important to ensure the jaw (or collar) used with the press tool matches not only the diameter but also the fitting profile to ensure a successful pressed joint.



M-Profile: All diameters from 10 to 168.3mm feature the same turned down end that the ring seal is seated.



V-Profile: Diameters DN50 and smaller have a flat *tail* continuing past the ring seal.

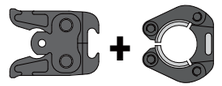
V-Profile: Diameters DN65 and above feature a flat socket lip that a *grab ring, spacer and ring seal* are seated.

Press Tool

Available in a range of sizes and abilities.

Press Jaw

Insert into tool directly.



Adaptor Jaw + Press Collar

Insert jaw into the tool, jaw clamps onto collar.

Above: Press Tools are fitted with an interchangeable jaw or, adaptor jaw and collar combination depending on the fitting material, system diameter and fitting press profile to be pressed. All must match for the press to be successful.

Since the original M-Profile was invented by Larsson, other profiles have been developed based on his design. Although appearing to be similar, each profile performs with different strength, deformation and ability characteristics.

Did You Know?

Originally designed in 1962 by Swedish engineer Gunther Larsson, the first press fittings were manufactured by German company Mannesmann from 1969.

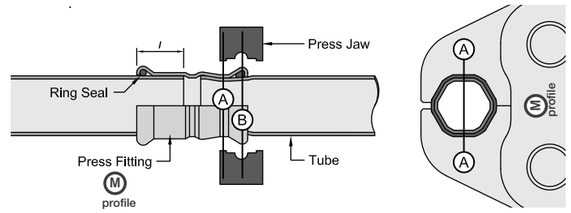
Two different cross section shapes are pressed depending on the tube diameter - the hexagonal and the lemon shape.

Section A:

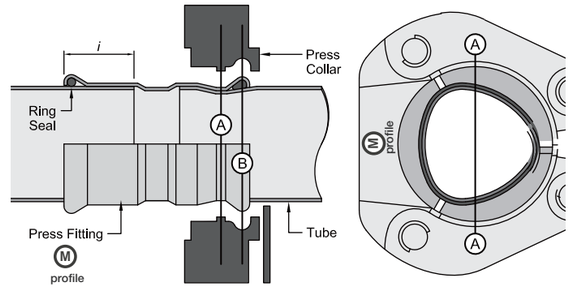
This forms the mechanical strength of the pressed join.

Section B:

The deformation of therubber ring seal ensures a permanently tight join.



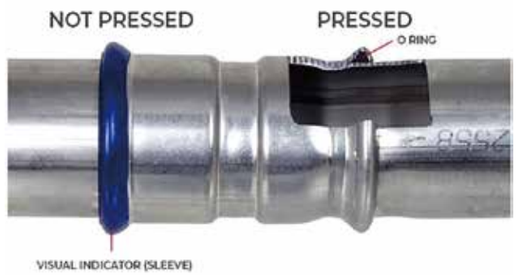
Above: Hexagonal shape section profile - Before pressing (fitting left), after pressing (fitting right) & Section A through pressed jion



Above: Lemon shape section profile - Before pressing (fitting left), after pressing (fitting right) & Section A through pressed join.

2.4 Sealing Elements

Confitpress stainless press fittings are available in three separate o-ring types each designed for varying applications. EPDM (ethylene propylene diene monomer) black o-rings, FKM-r (fluorocar-bon) red o-rings and HNBR (hydrogenated nitrile butadiene rubber) yellow o-rings. EPDM (ethylene propylene diene monomer) possess-es excellent resistance to ozone, sunlight and weathering, has very good flexibility at low temperature and good chemical resistance, such as to many dilute acids and alkalis and polar solvents. This o-ring is suitable for hot and cold potable water applications and some industrial applications. It is not suitable for aromatic hydrocarbons,



ConfitPRESS

Di-ester based lubricants, halogenated solvents or petroleum based oils and greases.
It is not suitable for any applications with temperatures exceeding 120°c. FKM-r (fluorocarbon) o-ring has excellent resistance to high temperatures up to 200°c (depending on the medium), ozone, weath-er, oxygen, mineral oil, fuels, hydraulic fluids,

Aromatics and many organic solvents and chemicals. It is ideal for petroleum products, fuels including those blended with ethanol or methanol, diesel, biodiesel, mineral oils and greases, silicone oils and greases, high vacuum, strong acids, ozone, weather and very high temperatures. It isn't suitable for ketones, low molecular weight organic

Acids (e.G. Formic and acetic), super-heated steam, low molecular weight esters and ethers or phos-phate based hydraulic fluids. Industry fittings have a red coloured o-ring. (hydrogenated nitrile buta-diene rubber) o-ring sealing element are utilised for the gas press fittings. HNBR, compared to stan-dard nitrile, possesses superior mechanical properties and improved resistance to heat, ozone and chemicals. It is suited to propane, butane and natural gas (methane). It is not suitable for drinking water. Gas press fittings have a yellow o-ring and are clearly marked with a distinctive yellow colour and the word gas. Whilst fuel gas standards call for working temperatures of up to 70°c, the Confitpress® stainless HNBR gas o-ring is certified for operating temperatures up to 100°c.

ConfitPRESS STAINLESS PRESS 316L		
	HIGH PRESSURE	STANDARD PRESSURE
	DIMENSION / HIGH PRESSURE	DIMENSION / STANDARD PRESSURE
EPDM BLACK 'O' RING	DN15-22MM / PN40	DN15-22MM / PN40
	DN28-35MM / PN40	DN28-35MM / PN25
	DN42-108MM / PN40	DN42-108MM / PN16
		DN168MM PN16
HNBR YELLOW 'O' RING	DN15-108MM / PN5	DN15-108MM / PN5
FKM RED 'O' RING	DN15-22 / PN40	DN15-22MM / PN40
	DN28-35MM /PN40	DN28-35MM / PN25
	DN42-108MM / PN40	DN42-108MM / PN16

ConfitPRESS 304STAINLESS PRESS 304	
	STANDARD PRESSURE
	DIMENSION / STANDARD PRESSURE
EPDM BLACK 'O' RING	DN15-22MM / PN40
	DN28-35MM / PN25
	DN42-108MM / PN16
	DN140-168MM PN16
HNBR YELLOW 'O' RING	DN15-108MM / PN5
FKM RED 'O' RING	DN15-22MM / PN40
	DN28-35MM / PN25
	DN42-108MM / PN16

Note: Only 316L pipe and fittings are rated to 4000 KPA. This rating is only achieved when using the purpose designed High Pressure jaws and tool.

O-RING SELECTION CHART	WATER EPDM	HT FKM	GAS HNBR
MEDIUM APPLICATIONS			
POTABLE WATER	●	●	
NON-POTABLE WATER	●	●	
SOLAR SYSTEM		●	
FLOW AND RETURN INDUSTRIAL FLUIDS	●	●	
FUEL AND NATURAL GAS			●
SPECIALIST AND LIQUID GAS	●	●	●
FIRE SPRINKLER	●		
FUEL OIL/HYDROCARBON		●	
COMPRESSED AIR		●	
INDUSTRY APPLICATIONS			
MANUFACTURING	●	●	
SHIP BUILDING AND RAIL	●	●	●
INDUSTRY GENERAL AND HEAVY	●	●	●
AUTOMOTIVE	●	●	
MEDICAL	●	●	●
CHEMICAL	●	●	●
CO-GENERATION ENERGY	●	●	
MINING	●	●	●
FOOD AND BEVERAGE	●	●	●
PULP AND PAPER	●	●	

EPDM - Ethylene Propylene Diene Monomer
FKM - Fluorocarbon Rubber
HNBR - Hydrogenated Nitrile Butadiene Rubber

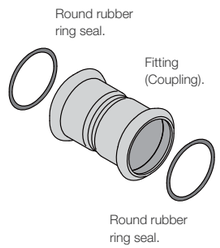
Ring Seals & Union Gaskets

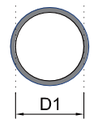
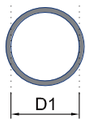
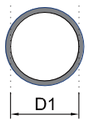
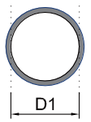
Ring Seals

Fittings with a press-fit socket are fitted with a EPDM rubber ring seal as standard.

Depending on the media, this ring seal should be changed to a different rubber material to suit the application.

Not sure? Refer to our Media Chart & Suitability Guide or contact us for more confirmation of suitability.

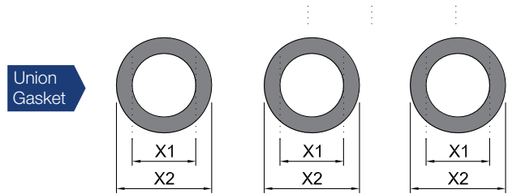


	Pre-fitted in fitting standard	Optional extra	Optional extra	Optional extra
Type:	**EPDM**	**FKM**	**NBR**	**PTFE**
Ring Seal				
Colour:	**Black**	**Green/Red**	**Yellow**	**White**
Temp:	-20°C to +110°C	-20°C to +180°C	-20°C to +70°C	-40°C to +150°C
D1	**Product No**	**Product No**	**Product No**	**Product No**
15	EPDM. **11** .015	FKM.**11**.015	NBR.**11**.015	PTFE.**11**.015
18	EPDM. **11** .018	FKM.**11**.018	NBR.**11**.018	PTFE.**11**.018
22	EPDM. **11** .022	FKM.**11**.022	NBR.**11**.022	PTFE.**11**.022
28	EPDM. **11** .028	FKM.**11**.028	NBR.**11**.028	PTFE.**11**.028
35	EPDM. **11** .035	FKM.**11**.035	NBR.**11**.035	PTFE.**11**.035
42	EPDM. **11** .042	FKM.**11**.042	NBR.**11**.042	-
54	EPDM. **11** .054	FKM.**11**.054	NBR.**11**.054	-
66.7	EPDM. **11** .066	FKM.**11**.066	NBR.**11**.066	-
76.1	EPDM. **11** .076	FKM.**11**.076	NBR.**11**.076	-
88.9	EPDM. **11** .088	FKM.**11**.088	NBR. **11**.088	-
108	EPDM. **11** .108	FKM.**11**.108	NBR. **11**.108	-
168.3	EPDM. **11** .168	FKM.**11**.168	-	

Union Gaskets

Union fittings are fitted with a (flat) rubber gasket seal and a Gasket (round) ring seal, both EPDM as standard.

Depending on the media, **both seals** should be changed to a different rubber material to suit the application.

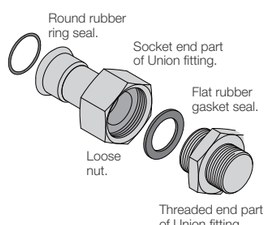


Colour:	**Black**	**Green**	**White (PTFE)**
Temp:	-20°C to +110°C	-20°C to +180°C	-40°C to +150°C

PTFE coated over FKM-G core.

Refer to our technical information for ring seal suitability and resistance.

X1	X2	Product No	Product No	Product No
18	13	EPDM.**12**.180.130	FKM.**12**.180.130	PTFE.**12**.180.130
24	15	EPDM.**12**.240.150	FKM.**12**.240.150	PTFE.**12**.240.150
30	21.5	EPDM.**12**.300.215	FKM.**12**.300.215	PTFE.**12**.300.215
38	27	EPDM.**12**.380.270	FKM.**12**.380.270	PTFE.**12**.380.270
44.5	33.5	EPDM.**12**.445.335	FKM.**12**.445.335	PTFE.**12**.445.335
50	41	EPDM.**12**.500.410	FKM.**12**.500.410	PTFE.**12**.500.410
55	47	EPDM.**12**.550.470	FKM.**12**.550.470	PTFE.**12**.550.470
65.5	53	EPDM.**12**.655.530	FKM.**12**.655.530	PTFE.**12**.655.530
72	59	EPDM.**12**.720.590	FKM.**12**.720.590	PTFE.**12**.720.590



When the Union (nut) is loosened or opened, the gasket is recommended to be replaced each time.

Unions are not approved to be used for gas or steam applications.

O – RING SELECTION CHART

MEDIUM APPLICATIONS	WATER EPDM	HT FKM	GAS HNBR	INDUSTRY APPLICATIONS	WATER EPDM	HT FKM	GAS HNBR
POTABLE WATER	●	●		MANUFACTURING	●	●	
NON-POTABLE WATER	●	●		SHIP BUILDING AND RAIL	●	●	●
SOLAR SYSTEM		●		INDUSTRY GENERAL AND HEAVY	●	●	●
FLOW & RETURN INDUSTRIAL FLUIDS	●	●		AUTOMOTIVE	●	●	
FUEL AND NATURAL GAS			●	MEDICAL	●	●	●
SPECIALIST AND LIQUID GAS	●	●	●	CHEMICAL	●	●	●
FIRE SPRINKLER	●			CO-GENERATION ENERGY	●	●	
FUEL OIL/HYDROCARBON		●		MINING	●	●	●
COMPRESSED AIR	●	●		FOOD AND BEVERAGE	●	●	●
STEAM		●		PULP AND PAPER	●	●	

EPDM - Ethylene Propylene Diene Monomer
FKM - Fluorocarbon Rubber
HNBR - Hydrogenated Nitrile Butadiene Rubber

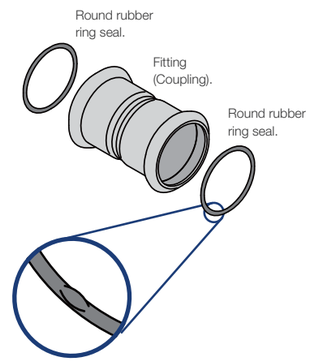
2.5 Leak Before Press Indicator

ConfitPRESS inox press-fit benefits from patented 'leak-before-press' O-ring technology which indicates if a joint has not been pressed. The O-ring contains two in-built water pathways that in the unpressed condition allows water to pass through and create a noticeable leak when the system is tested at low pressure (0.1 to 6.0 bar). Any unpressed joints can be pressed without draining down.

Rubber Ring Seals

Fittings are supplied with an EPDM type ring seal as standard in each press-socket.

Depending on the application, the EPDM ring seal may need to be changed to a different type, ie for higher chemical or temperature resistance.



LBP (Leak Before Press)

Features are small depressions that allow un-pressed fittings to drip leak during initial commissioning (testing) to identify joins that require attention.

EPDM Seal: Unpressed seal leaks when tested with water, pressures between 100 to 500kPa.

Note: Some chemical types and/or high concentrations can be unsuitable with stainless steel and ring seals.

Please contact us for suitability confirmation before installing, with a Project Info Sheet and any MSDS details or laboratory water testing results

2.6 Applications

2.6.1 Potable water, treated water, water for extinguishing systems

The ConfitPRESS press fitting system is manufactured using high alloy austenitic Cr-Ni-Mo stainless steel with the material nº 1.4404 (AISI 316L). Thanks to its high resistance to corrosion and suitability in terms of hygiene, ConfitPRESS can be used for all drinking water applications. Since this material does not release any heavy metals into the water, the purity of the potable water remains unchanged by the ConfitPRESS press fitting system.

The black EPDM sealing ring fullfils the standards of the KTW recommendations and meets the standards in accordance with DVGW worksheet W 270.

ConfitPRESS® with black EPDM sealing rings are suitable for use in the fields of:

- Potable Water In Cold Water, Warm Water And Circulation Piping;
- Treated Water, Such As Softened, Decarbonated And Desalinated Water;
- Extinguishing Systems.

2.6.2 Heating

The ConfitPRESS press fitting systems with black EPDM sealing rings is used for hot water heating systems in accordance with DIN 4751 which have a flow temperature up to max. 120 ºCentigrade and maxi-mum pressure PN16: closed and open versions. They are suitable for both on-wall and in-wall installation (with appropriate protections).

In case of floor radiator connections, it is necessary to provide for a consistent corrosion protection, with a joint sealing, made according to the highest standards. Otherwise it is possible to run the risk of washing water penetration hydrating the insulation and thus increasing the risk of corrosion.

2.6.3 Cooling and refrigeration circuits, compressed air

ConfitPRESS with black EPDM sealing rings are suitable for use cooling and refrigeration circuits in closed and open versions with operating temperatures between -20 / +120 ºCentigrade.

The ConfitPRESS press fitting system are suitable for pneumatic lines and inert gases. For systems with a residual oil content of class 1 to 4 (according to ISO 8573-1/2010) the black EPDM sealing ring can be used. For systems with a residual oil content of class 5 (according to ISO 8573-1/2010) the green FKM sealing ring can be used. It is loosely supplied and the factory-loaded black EPDM sealing ring is to be replaced by the processor. To ensure optimal sealing of compressed air or vacuum lines, it is recommended to humidify the sealing ring with water prior to assembly. In case of necessity of clean air, in absence of dust, the use of ConfitPRESS system is recommended.

2.6.4 Vacuum

ConfitRESS with black EPDM sealing rings can be used in the following field of application:

- Vacuum piping up to 200 mbar absolute (- 0,8 bar relative, up to a maximum of -0,95 / -0,98 bar).

It is recommended that the sealing ring be moistened using water before assembly.

Application	Flow medium	Pressure bar	Temp °C	M 316
Drinking water installations EN 806	Drinking water	10 max 16 max	95 25	✓ ✓
Hot water heaters EN 12828	Heating water	16	110 max	✓
Local and district heating tubes	Heating and district heating water	16	110 max	✓
Thermal solar systems with operating temperatures ≤ 110°C EN 12975 /12976	Water and water-glycol mixtures. Mixing ratio max 50/50%.	6	-35 to +110 180≤30 h/a** 200≤10 h/a**	✓
Water based air conditioning systems	Water and water-glycol mixtures. Mixing ratio max 50/50%.	6	-10 min	✓
Rainwater harvesting systems	Rainwater from cisterns.	10	25	✓
Oil-free compressed air	Compressed air classes 1 - 3 in accordance with ISO 8573-1	10	≤ 60	✓
Industrial and process water	Treated, softened, partially de-ionized water with a pH =/> 6.5**	16	110 max	✓
Vacuum lines for non-medical purposes	N/A	-0.8	Ambient	✓

2.7 Thermal Expansion

2.7.1 Effects of expansion

Tube lines conveying hot, cold, or media of varying temperature and lines which are exposed to a high level of heat radiation, expand and contract, generating thermal movement of the system.

If the lines are constrained and subject to thermal movement, damage can result mostly in the form of fatigue failures. It is important to avoid stress concentrations between fixed points, typically found at valves and other fittings within the system.

In order to maximise the design life of the system and reduce repair and maintenance costs, sufficient space for thermal movement must be allowed for in the design and installation of the system.

The basic principle is that sufficient movement potential must always be available between two fixed points. If the line routing does not enable sufficient compensation for thermal movement, installation of specific component parts, such as axial compensator's may be considered. Incorporating expansion loops, offsets and horseshoe expansion links into the system are also a cost-effective way to accommodate thermal expansion. To enable regular maintenance inspections the installation location should be visible and easily accessible for these items.

MINIMUM SIDE LENGTH "L" OF A U-BEND EXPANSION ELEMENT FOR

Tube Diameter d (mm)	Temperature Differential AL						
	10mm	20mm	30mm	40mm	50mm	60mm	70mm
15	0.33	0.46	0.57	0.65	0.73	0.80	0.87
22	0.40	0.56	0.69	0.79	0.89	0.97	1.05
28	0.45	0.63	0.77	0.89	1.00	1.10	1.18
35	0.50	0.71	0.87	1.00	1.12	1.22	1.32
42	0.55	0.77	0.95	1.10	1.22	1.34	1.45
54	0.62	0.88	1.08	1.24	1.39	1.52	1.64
76.1	0.74	1.04	1.28	1.47	1.65	1.81	1.95
108	0.88	1.24	1.52	1.76	1.96	2.15	2.32

MINIMUM DISTANCE "X" TO SLIDING SUPPORTS (M) TO ALLOW FOR THERMAL EXPANSION

Tube Diameter d (mm)	Temperature Differential AL						
	10mm	20mm	30mm	40mm	50mm	60mm	70mm
15	0.57	0.80	0.98	1.13	1.27	1.39	1.50
22	0.69	0.97	1.19	1.37	1.54	1.68	1.82
28	0.77	1.10	1.34	1.55	1.73	1.90	2.05
35	0.87	1.22	1.50	1.73	1.94	2.12	2.29
42	0.95	1.35	1.64	1.90	2.12	2.32	2.51
54	1.08	1.52	1.86	2.15	2.41	2.63	2.85
76.1	1.28	1.81	2.21	2.55	2.86	3.13	3.38
108	1.52	2.15	2.63	3.04	3.40	3.73	4.02

LINEAR EXPANSION FORMULA

Below table is based on potable water.

$\Delta L = (L)\ (\alpha)\ (\Delta\ )$

ΔL = Tube Length Change in mm

L = Pipeline/Tube Lengtha

α = Linear Thermal Expansion Coefficient (16.5 x 10^{-6} per °C change, for stainless steel from +20°C to +200°C)

Tube Length m	Temperature difference Δt °C							
	Δt=30°	Δt=40°	Δt=50°	Δt=60°	Δt=70°	Δt=80°	Δt=90°	Δt=100°
0.1	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16
0.2	0.10	0.13	0.16	0.19	0.22	0.26	0.30	0.32
0.3	0.14	0.20	0.24	0.30	0.34	0.40	0.43	0.50
0.4	0.20	0.26	0.32	0.40	0.45	0.50	0.60	0.64
0.5	0.24	0.30	0.40	0.50	0.56	0.64	0.72	0.80
0.6	0.30	0.40	0.50	0.58	0.67	0.77	0.86	0.96
0.7	0.34	0.45	0.56	0.67	0.80	0.90	1.01	1.12
0.8	0.40	0.50	0.64	0.77	0.90	1.02	1.15	1.30
0.9	0.43	0.57	0.72	0.86	1.01	1.15	1.30	1.44
1.0	0.50	0.64	0.80	0.96	1.12	1.30	1.44	1.60
2.0	0.96	1.30	1.60	1.92	2.24	2.60	2.90	3.20
3.0	1.44	1.92	2.40	2.90	3.40	3.84	4.32	4.80
4.0	1.92	2.60	3.20	3.80	4.50	5.12	5.76	6.40
5.0	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00
10.0	4.80	6.40	8.00	9.60	11.20	12.80	14.40	16.00
15.0	0.72	9.60	12.00	14.40	16.80	19.20	21.60	24.00
20.0	0.96	12.80	16.00	19.20	22.40	25.60	28.80	32.00
25.0	12.00	16.00	20.00	24.00	28.00	32.00	36.00	40.00

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2.7.2 Expansion devices

Where stainless steel tubes pass through walls, floors and ceilings, they should be able to move as a result of expansion and contraction. This can be arranged by passing the tube through a sleeve or length of larger diameter tube fixed through the whole thickness of the wall, floor or ceiling, or by means of flexible joints on either side of the wall.

Short stubs to and from radiators, connected to relatively long straight runs should also be avoided. This can usually be achieved by introducing an expansion loop, thereby increasing the length of pipework fixed between the flow/return legs and the radiator connection. However, expansion accommodation techniques such as the use of loops and horseshoes may not be sufficient to accommodate large expansions and in such cases the use of the bellow type couplers may be necessary.

2.8 Corrosion Resistance

2.8.1 Internal Corrosion

The term stainless comes from the steels ability to form a thin but dense protective film, known as the passive layer, which minimises the effects of corrosion and provides high levels of hygiene, durability and water quality.

The passive layer is formed when the chromium content of the material reacts with oxygen, resulting in the compound chromium oxide.

Chloride ions have the ability under certain conditions to penetrate the passive layer and cause localised corrosion. A chloride limit of 250 mg applies to drinking water within the EU. The chloride content of other water (e.g. process water) should not exceed 600 mg when using ConfitPRESS® (316L).

It has also been proved that the risk of crevice and pitting corrosion increases with temperature. It is therefore important that local chloride levels are taken into consideration and risks are minimised with the use of a suitable corrosion inhibitor for heating and cooling systems. Please refer to manufacturers instructions regarding the use of inhibitors in stainless steel systems. For further information on the protection of metallic materials against corrosion please refer to EN 12502 and EN 14868.

2.8.2 External Corrosion

In the event that a stainless steel system is exposed to corrosive environments external to the system, such as chloride from cladding materials or coastal/offshore sites, it is recommended that prior to the application of thermal insulation, a suitable protective paint or appropriate thickness aluminium foil wrap or thermal spray is applied.

Any corrosion barriers should be applied in accordance with BS 5970 - Code of practice for thermal insulation of pipework and equipment.

2.9 Thermal Insulation

Any lagging or insulation materials applied to the stainless steel tubes must not have a water soluble chloride ion content exceeding 0.05% by weight. Failure to ensure this may result in corrosion and a shortened life of the installed system.

Any lagging or insulation materials applied to the stainless steel tubes must not have a water soluble chloride ion content exceeding 0.05% by weight. Failure to ensure this may result in corrosion and a shortened life of the installed system.

2.9.1 THERMAL INSULATION

The following design considerations should be observed. Tube lines for cold drinking water are to be laid so that the drinking water quality is not impaired by the heat influence of the environment. A sufficient separation distance to heat sources is to be maintained, so that the lines are not influenced by these heat sources. If this is not possible, the cold water lines must be insulated against unwanted heating. In refrigeration systems, to decrease energy losses and to avoid unwanted water condensate, these lines must be water-blocking thermally-insulated. These requirements apply not only for newly built systems, but also for those laid during renovation in existing applications.

2.8.3 Protection against heat gain and frost

Regulations require that all water services (except warning or overflow pipes) shall be protected from freezing temperatures and heat gain. This is best achieved by protecting the system by use of a suitable thickness of insulation or in the case of particular situations such as unheated roof spaces that require special care, a self-regulating trace heating tape. In non-drinking water applications, if a frost protection inhibitor is to remain in the pipelines permanently, at least one concentration test must be carried out annually. All chemical additions must be agreed before use to rule out negative interactions with materials and sealing elements (O-rings).

2.9.2 ACOUSTIC INSULATION

Acoustic insulation is to be implemented according to standards and codes. Tubes, including fittings, in isolation generate no noise, but supports that are poorly constructed or poorly sized can generate noise that will be transmitted on the tube work. Tubes should always be acoustically insulated against structure borne noise in wall break-through penetrations, or on installation walls using clamps with acoustic insulation. An additional option is for these lines to be run through utility shafts.

2.10 Applications

Stainless steel, copper and copper alloys can be combined in a single system with no restriction of flow direction. However in order to minimise the likelihood of galvanic corrosion, a direct connection should not be made in systems where the use of corrosion inhibitors is not possible, and a dielectric union or copper alloy spacer of at least 50mm in length should be used for this connection. For further information on galvanic corrosion, please refer to EN14868 for closed water circulation systems and EN12502-4 for guidance specific to stainless steel systems.

2.11 Pressure Testing

It is preferable that testing a system containing ConfitPRESS Press Inox fittings is initially carried out pneumatically with oil-free compressed air or inert gas (eg nitrogen).

This is particularly important where systems are to remain idle for extended periods of time, and if tested hydrostatically and not properly drained or flushed (See section 2.11.1), there is the potential for bacteria growth and or corrosion. Pneumatic testing shall be carried out to a maximum of 3 bar and the pressure shall be increased slowly and incrementally.

A hydrostatic test shall only be carried out immediately prior to commissioning the installation. The system shall be filled with clean drinking water against an open high point valve allowing all trapped air to be removed from the network. Once free of trapped air, the high-level valve should be closed and the system topped up, at that stage testing should be completed between 1-2 bar to ensure any unpressed joints are identified. The recommended system test pressure should be in accordance with the requirements of EN 806 part 4 (1.1 x maximum design pressure or to the satisfaction of the supervising engineer with a maximum test pressure of 1.5 times the operating pressure). Full test pressure should be maintained for a minimum of 30 minutes with without any sign of pressure drop. A full inspection should then be carried out to identify any leaks.

During hydrostatic or pneumatic testing, any joints identified as unpressed and are showing signs of leakage should be pressed upon the return to atmospheric pressure, however it is essential the tube is fully inserted to the tube stop prior to pressing.

All joints shall remain uncovered and visible when pressure testing systems containing ConfitPRESS® Press Inox fittings.

Pressure testing should be carried out in accordance with national regulations and appropriate specifications drawn up and a risk assessment must be completed prior to testing.

2.11.1 Flushing of water installations

It is essential to flush the systems with water after installation to remove dust, and debris. Commissioning should be carried out in accordance with EN 806-4.

If installations are not used immediately after commissioning, they should be flushed at regular intervals, at least once a week. After an extended time, the system should be disinfected to comply with legionella guidelines.

2.11.2 Water softening

Hard water may be softened to avoid excessive deposits of scale in hot water services. ConfitPRESS® Press Inox system is fully compatible with reverse osmosis and ion exchange treatment methods and highly resistant to corrosions with softened decarbonised water or desalinated water.

2.12 Pressure Loss & Flow Rates

To calculate the resistance of a fluid flow in a straight section of a piping system, first determine the resistance in a unit of length and then multiply the total length by this value. This value can be determined analytically using the Hazen-Williams formula.

$$P = \frac{6.05 \times 10^5}{C^{1.85} \times di^{4.87}} \times Q^{1.85}$$

p = pressure drop in the pipe [bar/m]
Q = flow through the pipe [l/min]
di = mean internal diameter of the pipe [mm]
C = constant for type and condition of the pipe
(140 for Stainless Steel and Galvanised Steel)

If you wish to perform these calculations, please consult the relevant specialised literature. For the normal installation calculations, the appropriate diagrams, such as those given in the diagram on page 19, can be used to solve this problem. The unit pressure drop [R] and the flow velocity [m/s] for a given water flow rate can be determined simply and quickly in this way.

Once [R] and the actual or equivalent length of the piping system are known, the total pressure drop over the particular segment can be calculated. Graphs can be prepared for the different operating temperatures and various velocity ranges.

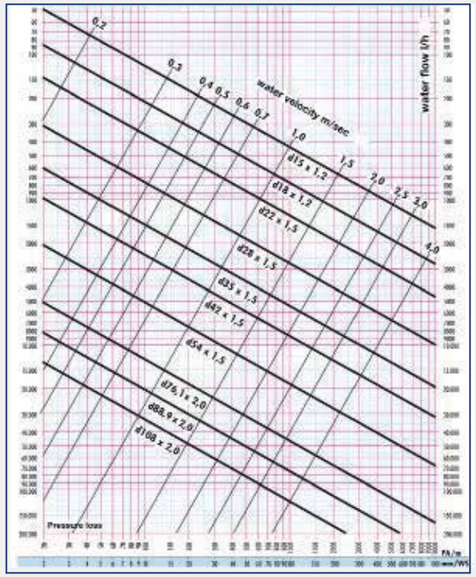
In addition to the temperature, water additives e.g. anti-freeze, will affect the value [R] and will need to be corrected accordingly. It would be too complex to use several diagrams to perform a calculation for each temperature.

[Kc] that needs to be applied to [R] for the actual temperature of the fluids. The following example explains the use of the nomo-gram. If we assume a flow rate of 700 l/h for pipe of 22 x 1.2 mm, the value of R is 27 WS/m (± 270Pa/m) for a temperature of 80°C. Imagine that we want to calculate the value of [R] for a water temperature of 40°C. We must first find the value of [R] for this temperature and then multiply that value by the correction factor [Kc] for a temperature of 40°C.

Pipe sizing and pressure losses

Galvanised Steel and Stainless Steel pipe:
d 15, 18, 22, 28, 35, 42, 54, 76, 89, 108, 168

The pressure losses are calculated according to the Nikuradse formula:
R=8,48455 ·109·m1,7749·di-4,807
Surface roughness: 0,01 mm
R = pressure loss (Pa/m)
m = flow rate (l/h)
di = pipe insider diameter (mm)



3. Products Range

3.1 M-V-Profile

COUPLING	SLIP COUPLING	90DEG ELBOW	90DEG ST ELBOW	REDUCING COUPLING A-TYPE
REDUCING COUPLING B-TYPE	45DEG ELBOW	45DEG ST ELBOW	STOP END	EQUAL TEE
REDUCING TEE	PIPE BRIDGE	FEMALE ADAPTOR	FEMALE UNION	MALE ADAPTOR
FEMALE ELBOW SHORT	MALE ELBOW	MALE ELBOW SHORT	FEMALE TEE	90DEG FEMALE ELBOW WITH BRACKET
MALE TEE	FLANGE	EQUAL CROSS	FEMALE U BEND	BALL VALVE

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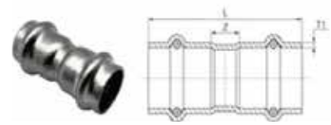
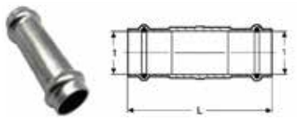
3.1.1 DIN/EN Standard



COUPLING

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(m
CNS015-4	CNS015-6	15	1.50	24	48
CNS018-4	CNS018-6	18	1.50	28	52
CNS022-4	CNS022-6	22	1.50	33	58
CNS028-4	CNS028-6	28	1.50	38	68
CNS035-4	CNS035-6	35	1.50	48	77
CNS042-4	CNS042-6	42	1.50	56	96
CNS054-4	CNS054-6	54	1.50	71	114
CNS076-4	CNS076-6	76	2.00	129.3	190
CNS089-4	CNS089-6	89	2.00	147.3	214
CNS108-4	CNS108-6	108	2.00	184.3	259



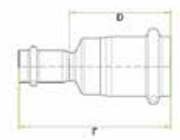
SLIP COUPLING

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CNSK15-4	CNSK15-6	15	1.50	28	80
CNSK18-4	CNSK18-6	18	1.50	24	74
CNSK22-4	CNSK22-6	22	1.50	20	71
CNSK28-4	CNSK28-6	28	1.50	22	84
CNSK35-4	CNSK35-6	35	1.50	26	99:
CNSK42-4	CNSK42-6	42	1.50	30	114
CNSK54-4	CNSK54-6	54	1.50	34	136
CNSK76-4	CNSK76-6	76.1	2.00	54	226
CNSK89-4	CNSK89-6	88.9	2.00	58	255
CNSK108-4	CNSK108-6	108	2.00	72	300

90DEG ELBOW

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDS015-4	CDS015-6	15	1.50	28	48
CDS018-4	CDS018-6	18	1.50	34	34
CDS022-4	CDS022-6	22	1.50	40	19
CDS028-4	CDS028-6	28	1.50	49	72
CDS035-4	CDS035-6	35	1.50	48	74
CDS042-4	CDS042-6	42	1.50	56	98
CDS054-4	CDS054-6	54	1.50	72	106
CDS076-4	CDS076-6	76.1	2.00	124	177
CDS089-4	CDS089-6	88.9	2.00	123	181
CDS108-4	CDS108-6	108	2.00	140	214

REDUCING COUPLING A-TYPE



Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CNSR18-15-4	CNSR18-15-6	18x15	64	19	44
CNSR22-15-4	CNSR22-15-6	22x15	68	19	48
CNSR22--18-4	CNSR22--18-6	22x18	67	19	45
CNSR28-15-4	CNSR28-15-6	28x15	65	19	46
CNSR28-18-4	CNSR28-18-6	28x18	77	28	57
CNSR28-22-4	CNSR28-22-6	28x22	81	28	62
CNSR35-15-4	CNSR35-15-6	35x15	74	28	52
CNSR35-18-4	CNSR35-18-6	35x18	85	31	65
CNSR35-22-4	CNSR35-22-6	35x22	86	31	67
CNSR35-28-4	CNSR35-28-6	35x28	82	31	60
CNSR42-15-4	CNSR42-15-6	42x15	88	31	62
CNSR42-18-4	CNSR42-18-6	42x18	92	37	72
CNSR42-22-4	CNSR42-22-6	42x22	92	37	73
CNSR42-28-4	CNSR42-28-6	42x28	93	37	71
CNSR42-35-4	CNSR42-35-6	42x35	101	37	75
CNSR54-15-4	CNSR54-15-6	54x15	101	37	71
CNSR54-18-4	CNSR54-18-6	54x18	120	48	101
CNSR54-22-4	CNSR54-22-	54x22	123	48	101
CNSR54-28-4	CNSR54-28-6	54x28	126	48	100
CNSR54-35-4	CNSR54-35-6	54x35	130	48	100
CNSR54-42-4	CNSR54-42-6	54x42	132	48	98
CNSR76-54-4	CNSR76-54-6	76.1x54	159	53	129
CNSR89-54-4	CNSR89-54-6	88.9x54	162	53	128
CNSR89-76-4	CNSR89-76-6	88.9x76.1	179	53	126
CNSR108-54-4	CNSR108-54-6	108x54	179	64	145
CNSR108-76-4	CNSR108-76-6	108x76.1	198	64	145
CNSR108-89-4	CNSR108-89-6	108x88.9	206	64	148

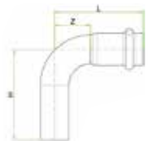
45DEG ST ELBOW

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDS015-S-45-4	CDS015-S-45-6	15	1.50	12	34
CDS018-S-45-4	CDS018-S-45-6	18	1.50	14	38
CDS022-S-45-4	CDS022-S-45-6	22	1.50	16	41
CDS028-S-45-4	CDS028-S-45-6	28	1.50	17	42
CDS035-S-45-4	CDS035-S-45-6	35	1.50	21	48
CDS042-S-45-4	CDS042-S-45-6	42	1.50	27	62
CDS054-S-45-4	CDS054-S-45-6	54	1.50	33	71
CDS076-S-45-4	CDS076-S-45-6	76	2.00	58	111
CDS089-S-45-4	CDS089-S-45-6	89	2.00	56	114
CDS108-S-45-4	CDS108-S-45-6	108	2.00	64	138

45DEG ELBOW

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDS015-45-4	CDS015-45-6	15	1.50	12	34
CDS018-45-4	CDS018-45-6	18	1.50	14	38
CDS022-45-4	CDS022-45-6	22	1.50	16	41
CDS028-45-4	CDS028-45-6	28	1.50	17	42
CDS035-45-4	CDS035-45-6	35	1.50	21	48
CDS042-45-4	CDS042-45-6	42	1.50	27	62
CDS054-45-4	CDS054-45-6	54	1.50	33	71
CDS076-45-4	CDS076-45-6	76	2.00	58	111
CDS089-45-4	CDS089-45-6	89	2.00	56	114
CDS108-45-4	CDS108-45-6	108	2.00	64	138

90DEG ST ELBOW

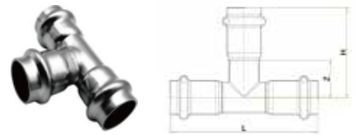


Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDS015-S-4	CDS015-S-6	15	1.50	28	48
CDS018-S-4	CDS018-S-6	18	1.50	34	54
CDS022-S-4	CDS022-S-6	22	1.50	40	61
CDS028-S-4	CDS028-S-6	28	1.50	49	72
CDS035-S-4	CDS035-S-6	35	1.50	48	74
CDS042-S-4	CDS042-S-6	42	1.50	56	86
CDS054-S-4	CDS054-S-6	54	1.50	72	106
CDS076-S-4	CDS076-S-6	76	2.00	124	177
CDS089-S-4	CDS089-S-6	89	2.00	123	181
CDS108-S-4	CDS108-S-6	108	2.00	140	214

STOP END

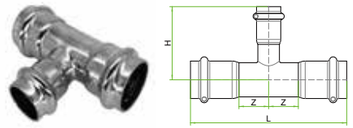
Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CKTS015-4	CKTS015-6	15	1.50	12	16
CKTS018-4	CKTS018-6	18	1.50	14	18
CKTS022-4	CKTS022-6	22	1.50	16	20
CKTS028-4	CKTS028-6	28	1.50	17	20
CKTS035-4	CKTS035-6	35	1.50	21	25
CKTS042-4	CKTS042-6	42	1.50	27	24
CKTS054-4	CKTS054-6	54	1.50	33	25
CKTS076-4	CKTS076-6	76	2.00	58	36
CKTS089-4	CKTS089-6	89	2.00	56	45
CKTS108-4	CKTS108-6	108	2.00	64	56

EQUAL TEE



Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CTS015-4	CTS015-6	15	1.50	19	64
CTS018-4	CTS018-6	18	1.50	20	68
CTS022-4	CTS022-6	22	1.50	21	71
CTS028-4	CTS028-6	28	1.50	25	82
CTS035-4	CTS035-6	35	1.50	27	100
CTS042-4	CTS042-6	42	1.50	30	114
CTS054-4	CTS054-6	54	1.50	37	136
CTS076-4	CTS076-6	76	2.00	55	226
CTS089-4	CTS089-6	89	2.00	69	256
CTS108-4	CTS108-6	108	2.00	85	300

REDUCING TEE



Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CTRS18-15-4	CTRS18-15-6	18×15	1.50	19	71
CTRS22-15-4	CTRS22-15-6	22×15	1.50	19	71
CTRS22-18-4	CTRS22-18-6	22×18	1.50	19	82
CTRS28-15-4	CTRS28-15-6	28×15	1.50	19	82
CTRS28-18-4	CTRS28-18-6	28×18	1.50	19	82
CTRS28-22-4	CTRS28-22-6	28×22	1.50	28	100
CTRS35-15-4	CTRS35-15-6	35×15	1.50	28	100
CTRS35-18-4	CTRS35-18-6	35×18	1.50	28	100
CTRS35-22-4	CTRS35-22-6	35×22	1.50	28	100
CTRS35-28-4	CTRS35-28-6	35×28	1.50	28	100
CTRS42-15-4	CTRS42-15-6	42×15	1.50	31	114
CTRS42-18-4	CTRS42-18-6	42×18	1.50	31	114
CTRS42-22-4	CTRS42-22-6	42×22	1.50	31	114
CTRS42-28-4	CTRS42-28-6	42×28	1.50	31	114
CTRS42-35-4	CTRS42-35-6	42×35	1.50	31	114
CTRS54-15-4	CTRS54-15-6	54×15	1.50	37	136
CTRS54-18-4	CTRS54-18-6	54×18	1.50	37	136
CTRS54-22-4	CTRS54-22-6	54×22	1.50	37	136
CTRS54-28-4	CTRS54-28-6	54×28	1.50	37	136
CTRS54-35-4	CTRS54-35-6	54×35	1.50	37	136
CTRS54-42-4	CTRS54-42-6	54×42	1.50	37	136
CTRS76-22-4	CTRS76-22-6	76.1×22	2.00	48	226
CTRS76-28-4	CTRS76-28-6	76.1×28	2.00	48	226
CTRS76-35-4	CTRS76-35-6	76.1×35	2.00	48	226
CTRS76-42-4	CTRS76-42-6	76.1×42	2.00	48	226
CTRS76-54-4	CTRS76-54-6	76.1×54	2.00	48	226
CTRS89-22-4	CTRS89-22-6	88.9×22	2.00	53	256
CTRS89-28-4	CTRS89-28-6	88.9×28	2.00	53	256
CTRS89-35-4	CTRS89-35-6	88.9×35	2.00	53	256
CTRS89-42-4	CTRS89-42-6	88.9×42	2.00	53	256
CTRS89-54-4	CTRS89-54-6	88.9×54	2.00	53	256
CTRS89-76-4	CTRS89-76-6	88.9×76.1	2.00	53	256
CTRS108-22-4	CTRS108-22-6	108×22	2.00	64	300
CTRS108-28-4	CTRS108-28-6	108×28	2.00	64	300
CTRS108-35-4	CTRS108-35-6	108×35	2.00	64	300
CTRS108-42-4	CTRS108-42-6	108×42	2.00	64	300
CTRS108-54-4	CTRS108-54-6	108×54	2.00	64	300
CTRS108-76-4	CTRS108-76-6	108×76.1	2.00	64	300
CTRS108-89-4	CTRS108-89-6	108×88.9	2.00	64	300

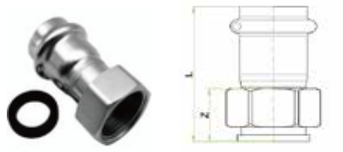
PIPE BRIDGE

Code 304	Code 316	Specs(mm)	THK(mm)	L(mm)
CBKS015-4	CBKS015-6	15	1.50	160
CBKS018-4	CBKS018-6	18	1.50	170
CBKS022-4	CBKS022-6	22	1.50	180
CBKS028-4	CBKS028-6	28	1.50	240

FEMALE ADAPTOR

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CND015S-1/2-4	CND015S-1/2-6	15×Rp1/2	1.50	34	54
CND018S-1/2-4	CND018S-1/2-6	18×Rp1/2	1.50	34	54
CND018S-3/4-4	CND018S-3/4-6	18×Rp3/4	1.50	34	54
CND022S-1/2-4	CND022S-1/2-6	22×Rp1/2	1.50	38	58
CND022S-3/4-4	CND022S-3/4-6	22×Rp3/4	1.50	38	58
CND028S-3/4-4	CND028S-3/4-6	28×Rp3/4	1.50	39	61
CND028S-1-4	CND028S-1-6	28×Rp1	1.50	39	61
CND035S-1-4	CND035S-1-6	35×Rp1	1.50	43	69
CND035S-1-1/4-4	CND035S-1-1/4-6	35×Rp1-1/4	1.50	48	69
CND035S-1-1/2-4	CND035S-1-1/2-6	35×Rp1-1/2	1.50	47	77
CND042S-1-1/4-4	CND042S-1-1/4-6	42×Rp1-1/4	1.50	47	81
CND042S-1-1/2-4	CND042S-1-1/2-6	42×Rp1-1/2	2.00	74	129
CND054S-1-1/2-4	CND054S-1-1/2-6	54×Rp1-1/2	2.00	61	118
CND054S-2-4	CND054S-2-6	54×Rp2	2.00	64	138

FEMALE UNION



Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CND015SO-1/2-4	CND015SO-1/2-6	15×G1/2	1.50	47	67
CND018SO-1/2-4	CND018SO-1/2-6	18*G1/2	1.50	54	74
CND022SO-3/4-4	CND022SO-3/4-6	22*G3/4	1.50	58	77
CND028SO-1-4	CND028SO-1-6	28*G1	1.50	63	85
CND035SO-1-1/4-4	CND035SO-1-1/4-6	35*G11/4	1.50	70	96
CND042SO-1-1/2-4	CND042SO-1-1/2-6	42*G11/2	1.50	75	105
CND054SO-2-4	CND054SO-2-6	54×G2	1.50	97	127

MALE ADAPTOR

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CNE015S-1/2-4	CNE015S-1/2-6	15×R1/2	1.50	34	54
CNE018S-1/2-4	CNE018S-1/2-6	18×R1/2	1.50	36	55
CNE018S-3/4-4	CNE018S-3/4-6	18×R3/4	1.50	36	55
CNE022S-1/2-4	CNE022S-1/2-6	22×R1/2	1.50	38	57
CNE022S-3/4-4	CNE022S-3/4-6	22×R3/4	1.50	38	57
CNE028S-3/4-4	CNE028S-3/4-6	28×R3/4	1.50	41	63
CNE028S-1-4	CNE028S-1-6	28×R1	1.50	41	63
CNE035S-1-4	CNE035S-1-6	35×R1	1.50	45	71
CNE035S-1-1/4-4	CNE035S-1-1/4-6	35×R1-1/4	1.50	45	71
CNE035S-1-1/2-4	CNE035S-1-1/2-6	35×R1-1/2	1.50	45	71
CNE042S-1-1/4-4	CNE042S-1-1/4-6	42*R1-1/4	1.50	48	78
CNE042S-1-1/2-4	CNE042S-1-1/2-6	42×R1-1/2	1.50	48	78
CNE054S-1-1/2-4	CNE054S-1-1/2-6	54×R1-1/2	1.50	50	84
CNE054S-2-4	CNE054S-2-6	54×R2	2.00	74	128
CNE076S-2-1/2-4	CNE076S-2-1/2-6	76.1×R2-1/2	2.00	85	142
CNE089S-3-4	CNE089S-3-6	88.9×R3	2.00	73	155

FEMALE ELBOW SHORT

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDD015SS-1/2-4	CDD015SS-1/2-6	15×G1/2	1.50	47	25
CDD018SS-1/2-4	CDD018SS-1/2-6	18*G1/2	1.50	50	27
CDD022SS-3/4-4	CDD022SS-3/4-6	22*G3/4	1.50	53	29
CDD028SS-1-4	CDD028SS-1-6	28*G1	1.50	61	41
CDD035SS-1-1/4-4	CDD035SS-1-1/4-6	35*G11/4	1.50	70	49

MALE ELBOW

Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
CDE015S-1/2-4	CDE015S-1/2-6	115×R1/2	1.50	28	48
CDE018S-1/2-4	CDE018S-1/2-6	18×R1/2	1.50	40	61
CDE022S-1/2-4	CDE022S-1/2-6	22×R1/2	1.50	49	72
CDE022S-3/4-4	CDE022S-3/4-6	22×R3/4	1.50	48	74
CDE028S-1-4	CDE028S-1-6	28×R1	1.50	56	86
CDE035S-1-1/4-4	CDE035S-1-1/4-6	35×R1-1/4	1.50	72	106
CDE042S-1-1/2-4	CDE042S-1-1/2-6	42×R1-1/2	1.50	124	177
CDE054S-1-1/2-4	CDE054S-1-1/2-6	54×R1-1/2	2.00	123	181
CDE054S-2-4	CDE054S-2-6	54×R2	2.00	140	214

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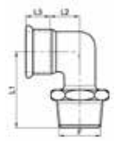
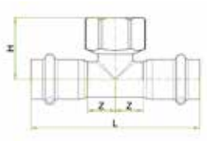
MALE ELBOW SHORT



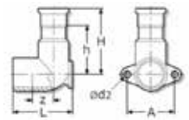
Code 304	Code 316	Specs(mm)	L1(mm)	L2(mm)	L3(mm)	W(KG)
CDE015SS-1/2-4	CDE015SS-1/2-6	15×G1/2	33	27	20	0,088
CDE018SS-1/2-4	CDE018SS-1/2-6	18*G1/2	34	27	21	0,105
CDE022SS-3/4-4	CDE022SS-3/4-6	22*G3/4	41	33	21	0.148
CDE028SS-1-4	CDE028SS-1-6	28*G1	45	36	24	0.258
CDE035SS-1-1/4-4	CDE035SS-1-1/4-6	35*G11/4	59	43	27	0,432
CDE042SS-1-1/2-4	CDE042SS-1-1/2-6	42*G11/2	60	52	32	0,478
CDE054SS-2-4	CDE054SS-2-6	54×G2	74	54	38	0,825

FEMALE TEE



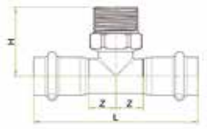
Code 304	Code 316	Specs(mm)	L1(mm)	L2(mm)	L3(mm)	L4(mm)	W(KG)
CODT015S-1/2-4	CODT015S-1/2-6	15×Rp1/2	66	13	20	35,2	0,074
CODT018S-1/2-4	CODT018S-1/2-6	18×Rp1/2	68	13	21	36,7	0,086
CODT022S-1/2-4	CODT022S-1/2-6	22×Rp1/2	80	19	21	39	0,110
CODT022S-3/4-4	CODT022S-3/4-6	22×Rp3/4	80	19	21	42	0,126
CODT028S-1/2-4	CODT028S-1/2-6	28×Rp1/2	88	20	24	42	0,174
CODT028S-3/4-4	CODT028S-3/4-6	28×Rp3/4	88	20	24	45	0,154
CODT035S-1/2-4	CODT035S-1/2-6	35×Rp1/2	105	25,5	27	44,5	0,182
CODT035S-3/4-4	CODT035S-3/4-6	35×Rp3/4	105	25,5	27	47,5	0,198
CODT042S-1/2-4	CODT042S-1/2-6	42×Rp1/2	114	25	32	48	0,234
CODT042S-3/4-4	CODT042S-3/4-6	42×Rp3/4	114	25	32	51	0,245
CODT054S-1/2-4	CODT054S-1/2-6	54×Rp1/2	144	34	3B	55	0,348
CODT054S-3/4-4	CODT054S-3/4-6	54×Rp3/4	144	34	38	58	0,363
CODT054S-2-4	CODT054S-2-6	54×Rp2	144	34	3B	79	0,775
CODT076S-3/4-4	CODT076S-3/4-6	76.1×Rp3/4	242	66	55	69	0,960
CODT076S-2-4	CODT076S-2-6	76.1×Rp2	242	66	55	90	1,190
CODT089S-3/4-4	CODT089S-3/4-6	88.9×Rp3/4	250	61	64	76	1,920
CODT089S-2-4	CODT089S-2-6	88.9×Rp2	250	61	64	97	1,490
CODT108S-3/4-4	CODT108S-3/4-6	108×Rp3/4	310	77	78	85	1,720
CODT108S-2-4	CODT108S-2-6	108×Rp2	310	77	78	106	2,270

90DEG FEMALE ELBOW WITH BRACKET



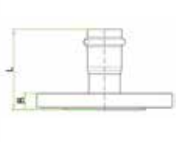
Code 304	Code 316	Specs(mm)	A(mm)	h(mm)	Z(mm)	L (mm)	d2(mm)	H(mm)
CDTDD015S-1/2-4	CDTDD015S-1/2-4	15×Rp1/2	34	28	17	44	5	50
CDTDD018S-1/2-4	CDTDD018S-1/2-4	15×Rp1/2	34	28	17	44	5	50
CDTDD022S-1/2-4	CDTDD022S-1/2-4	18×Rp1/2	34	30	17	44	5	50
CDTDD022S-3/4-4	CDTDD022S-3/4-4	18×Rp1/2	34	30	17	44	5	50
CDTDD028S-1-4	CDTDD028S-1-4	22×Rp3/4	40	33	20	51	6	54
CDTDD035S-1-1/4-4	CDTDD035S-1-1/4-4	22×Rp3/4	40	33	20	51	6	54

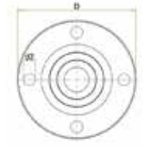
MALE TEE



Code 304	Code 316	Specs(mm)	THK(mm)	Z(mm)	L(mm)
COET015S-1/2-4	COET015S-1/2-6	15×R1/2	1.50	19	64
COET018S-1/2-4	COET018S-1/2-6	18×R1/2	1.50	20	68
COET018S-3/4-4	COET018S-3/4-6	18×R3/4	1.50	20	68
COET022S-1/2-4	COET022S-1/2-6	22×R1/2	1.50	21	71
COET022S-3/4-4	COET022S-3/4-6	22×R3/4	1.50	21	71
COET028S-1/2-4	COET028S-1/2-6	28×R1/2	1.50	25	82
COET028S-3/4-4	COET028S-3/4-6	28×R3/4	1.50	25	82
COET028S-1-4	COET028S-1-6	28×R1	1.50	25	82
COET035S-3/4-4	COET035S-3/4-6	35×R3/4	1.50	27	100
COET035S-1-1/4-4	COET035S-1-1/4-6	35×R1-1/4	1.50	27	100
COET042S-3/4-4	COET042S-3/4-6	42×R3/4	1.50	30	114
COET042S-1-1/2-4	COET042S-1-1/2-6	42×R1-1/2	1.50	30	114
COET054S-3/4-4	COET054S-3/4-6	54×R3/4	1.50	37	136
COET054S-2-4	COET054S-2-6	54×R2	1.50	37	136

FLANGE





Code 304	Code 316	Specs(mm)	B(mm)	L(mm)	D(mm)
CFB015S-4	CFB015S-6	115	14	45	95
CFB018S-4	CFB018S-6	18	14	47	95
CFB022S-4	CFB022S-6	22	16	52	105
CFB028S-4	CFB028S-6	28	16	56	115
CFB035S-4	CFB035S-6	35	18	66	140
CFB042S-4	CFB042S-6	42	18	74	150
CFB054S-4	CFB054S-6	54	18	85	165
CFB076S-4	CFB076S-6	76	20	132	185
CFB089S-4	CFB089S-6	89	20	146	200
CFB108S-4	CFB108S-6	108	20	169	220

6. Notes