

TECHNICAL MANUAL HANDBOOK



STAINLESS STEEL PIPES AND FITTINGS

(C) ЗАО "ТЭС"

The quick assembly considerably reduces the cost of installation, enabling greater user accessibility to the pressfitting installations. The STAINLESS STEEL Instalpress System enables labour time to be reduced by between 60% and 70% compared with a welded or threaded system, and since it is easy to assemble, qualified workers are not required.

Filinox, S.A. offers a wide range of products with dimensions of between 15 mm and 108 mm.

The project planner and the installation technician are therefore in a position to plan, produce and operate service facilities according to EN 806, EN 1717, EN 12329, DIN 1988, DVGW W 551 and W 552 etc. standards.

Benefits of the STAINLESS STEEL Instalpress System compared with other conventional joint systems:

TABLE 2.0-1, BENEFITS OF THE INSTALPRESS PRESSFITTING SYSTEM

FAST	Approx. 20 – 45% lower personnel costs compared with conventional joint systems.
CLEAN	Ideal for plumbing in inhabited premises
SAFE	There is no fire hazard as is the case with welding.
ECONOMICAL	Consumable materials such as gas and oxygen are not required; no need for renting bottles.
SIMPLE	Lower risk of making mistakes.
UNIVERSAL	Wall and embedded installation possible
HYGIENIC	The EPDM black butyl rubber gasket complies with DVGW-W 270 requirements with respect to microbiological security (e.g. Legionella).
TESTED	The EPDM black butyl rubber gasket is the only joint of the pressing system that has been used for more than 30 years in practical and testing applications.

This technical manual offers important indications especially for the project manager and installer for analysing the application of pipe systems according to current technical requirements. This technical document refers to current European technical requirements, and as applicable shows other Spanish dispositions and regulations as well as the general “technical status”.

For other queries, please ask the INSTALPRESS Technical Department.

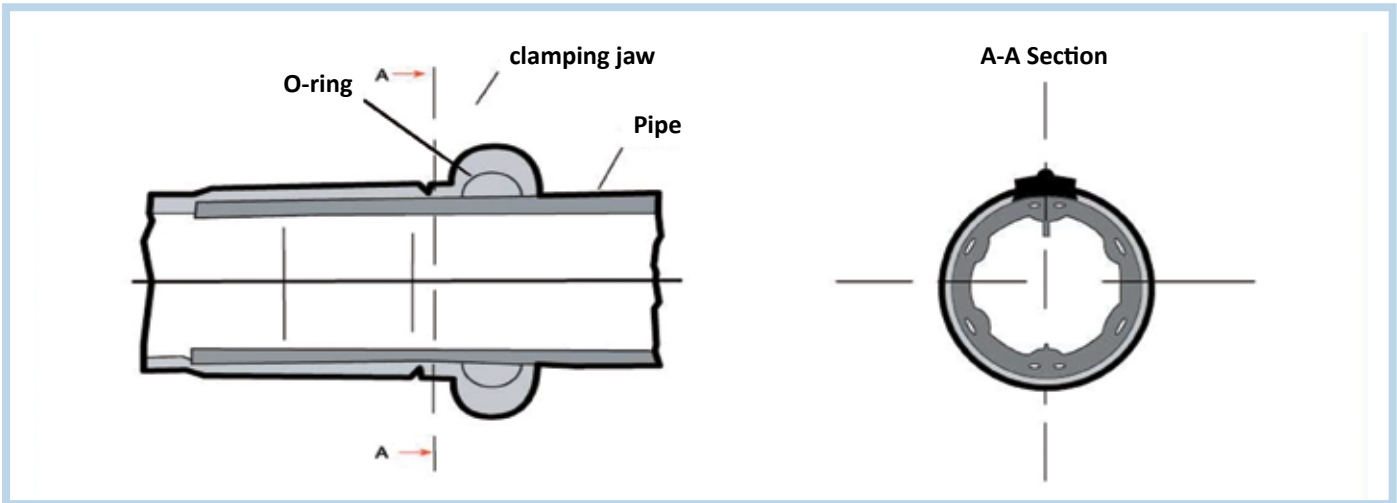
2.0. SYSTEM TECHNOLOGY

2.1. Instalpress pressing technique

The Instalpress System includes system press fittings, system tubes and system gaskets.

This fast, simple and safe joint is a technical and economic alternative compared with glued, threaded or welded joints, eliminating the hazard of fire thanks to the cold-forming technology.

Critical factors for guaranteeing the joint’s mechanical resistance are the pressing and the depth of insertion of the tubes inside the press fitting. An EPDM elastomer with contour is used to seal the joint. The press joint, which according to DVGW W 534 is indissoluble, of a lasting seal, is a joint by shape and longitudinal force, inseparable, which is achieved by cold-shaping of the press fittings and the tube. The joint is created using the press tool described in this technical handbook. The contour formed in the pressing process has two levels. The first level, the sealing, is achieved by compressing the elastomer. For the mechanical resistance necessary for this joint, the press fittings and the pipe are cold-moulded in the second level.

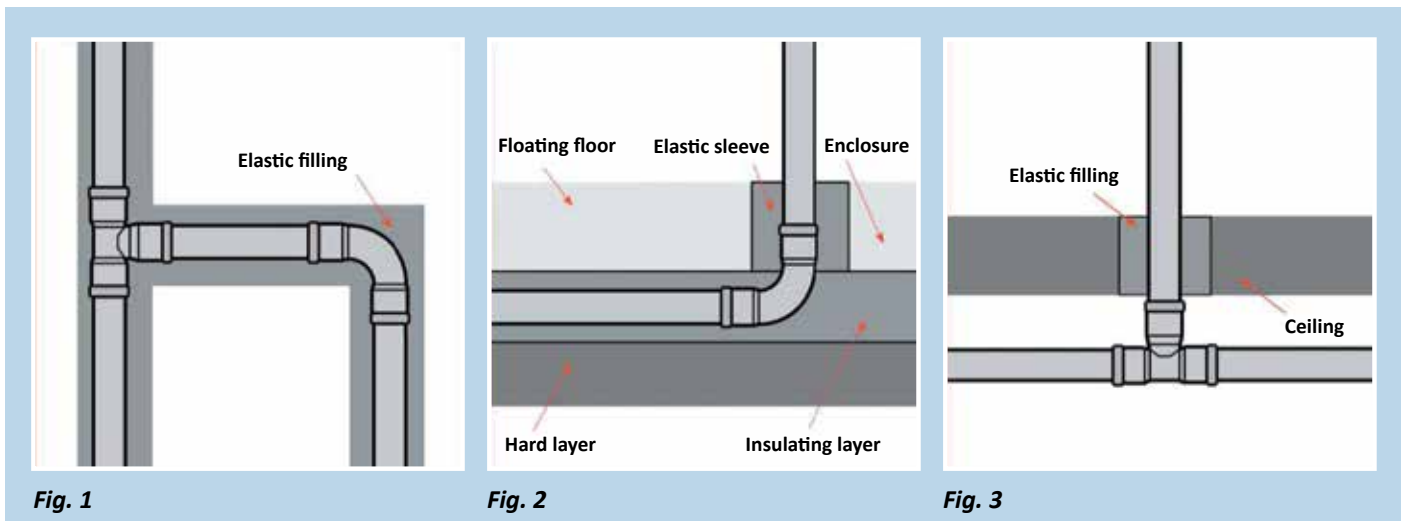
2.2. STAINLESS STEEL INSTALPRESS SYSTEM PIPE TECHNICAL DATA

2.2.1. UNE-EN 10312 STANDARD
WELDED STAINLESS STEEL PIPES FOR AQUEOUS LIQUIDS INCLUDING WATER FOR HUMAN CONSUMPTION. TECHNICAL CONDITIONS OF SUPPLY.

This European standard establishes delivery conditions for thin-walled stainless steel pipes especially for piping water, heating, etc., including water for human consumption, supplied in straight pipes suitable for being installed with fittings with adhesive, capillary welding with inert gas, welding silver, compressive or pressfittings (pressure).

This standard applies to 6 mm to 267 mm external diameter pipes.

Taking into account that the standards are the same in all the entities and units related to the approval and legalisation of drinking water and heating, etc. facilities, it is approved and valid according to the former UNE 19049-1 as well as the current UNE EN 10312 standard.

	Nominal diameter	Outer diameter, mm		Theoretic thickness according to EN10312 Standard	Linear mass: Kg/m	Theoretic thickness according to DVWG GW-541	Linear mass: Kg/m
		Max	Min				
The measures provided in the standard and marketed by INSTALPRESS are the following: EN 10312 SERIES 1 SERIES 2 (DVWG)	10	10,045	9,940	0,6	0,141	–	–
	12	12,045	11,940	0,6	0,171	–	–
	15	15,045	14,940	0,6	0,216	1	0,351
	18	18,045	17,940	0,7	0,303	1	0,426
	22	22,055	21,950	0,7	0,373	1,2	0,625
	28	28,055	27,950	0,8	0,545	1,2	0,805
	35	35,070	34,965	1,0	0,851	1,5	1,258
	42	42,070	41,965	1,2	1,230	1,5	1,521
	54	54,070	53,840	1,2	1,470	1,5	1,972
	76,1	76,300	73,540	2,0	3,711	2,0	3,711
	88,9	88,120	88,230	2,0	4,352	2,0	4,352
	108	108,250	107,17	2,0	5,328	2,0	5,328



7.1.2. Elongation Compensation

When the length variation of the pipes can't be absorbed by the elasticity or by the free space, then it's necessary to place expansion compensators

There are three types: U or Z shape, or with the internal thread, that they are joined to the fittings. (fig. 4)

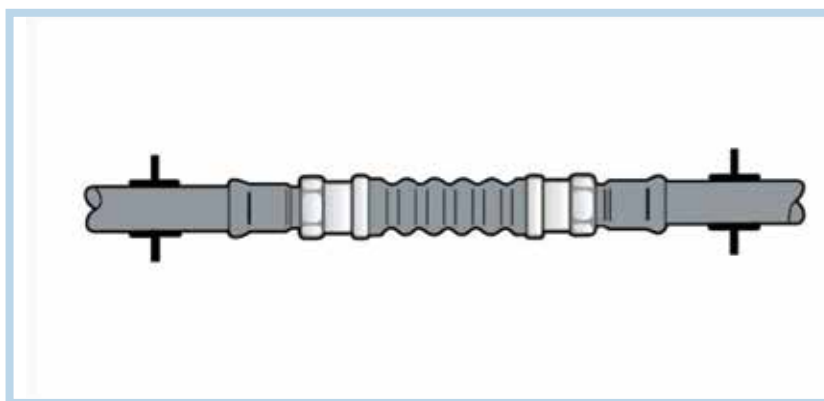


Fig. 4

The compensators can be bent in a U or Z shape or also originate from a straight pipe and angled attachment (Fig. 5, 6, 7 and 8 on the next page). The following calculation method can be used for calculating the length of the angular offset:

- Calculation of the thermal expansion (use the form in section 11.1)
- Calculation of the angular offset length (in the case of compensator 2)

$$L = K \sqrt{d_e \cdot \Delta l}$$

Where:

K= Material constants = 45 (STAINLESS STEEL)

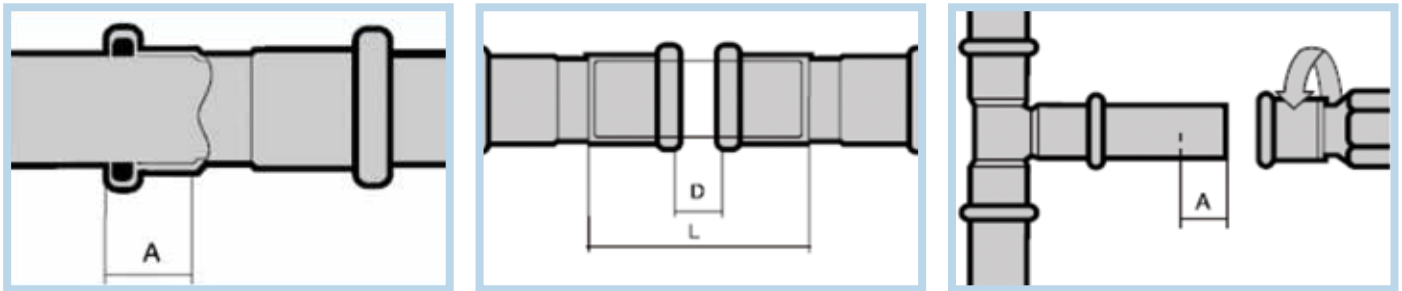
d_e= Outer diameter of the pipe

Δl= The thermal expansion to be compensated

If the U type is used, the length of the angular offset must be divided by 2 according to the above formula, because there are two expansion arms. To be more accurate, the divided value must be equal to L/1.8.

9.1.3. Marking the depth of the insertion

A permanent marking on the system pipe or moulding with spigots, I-A arcs and pass arcs, serve to achieve the required mechanical solidness of the press connection. This marking is to be applied before attaching to the end of the pipe.



d in mm	Insertion depth "A" mm	Insertion depth "D" mm	Insertion depth "L" mm
15	20	10	50
18	20.5	10	51
22	21.5	10	53
28	23	10	56
35	25	10	60
42	30	20	80
54	35	20	90
76.1	53	30	136
88.9	60	30	150
108	75	30	180

9.1.4. Insertion into the press fitting

Before inserting the end of the pipe into the moulding press socket, it is necessary to inspect the sealing element for proper placement, damage and dirtiness. Light force and turning are then used to insert the pipe section into the pressfitting up to the insertion depth marking.



13.0. PRESSING TOOLS FOR INSTALLATIONS WITH THE REMS MACHINE.

Monobloc

REMS pressing clamp with two oscillating monobloc bodies.



4G

REMS pressing clamp (4G) with two parallel and oscillating pressing segments for straight pressings of medium to high dimensions.



PR

REMS pressing ring (PR-3S) with three pressing segments housed in an articulated balancing ring, for pressings with large dimension requirements. Optimal pressings by radial movement controlled by the pressing segments, with adapter clamp.



15.0. PRESSING MACHINE SPECIFICATIONS
Klauke UAP2


Power supply voltage	Battery 12v-20Ah
Piston advance force	32 KN
Return	automatic
Turning head	360°
Diameters	15 - 54
Weight	3.9

UNP 2


Power supply voltage	Battery 12v-20Ah
Piston advance force	32 KN
Return	automatic
Turning head	360°
Diameters	15 - 54
Weight	3.9

UAP 100


Power supply voltage	220V
Piston advance force	120 KN
Return	automatic
Turning head	360°
Diameters	76.1 – 88.9 - 108
Weight	10

Ref.-No. EHP2SAN1B

AC motor
 Power: 0.75 kW
 Engine voltage: 230 V – 50 Hz
 Capacity: 0.9 l/min
 Working pressure: max 700 bar

Hydraulic hose, 5 m long
 Electric cable, 10 m long
 Transport trolley





**NOVOPRESS ECO 301 MACHINE
(METAL CASE)**

- Mod. 302 adaptor for 42 and 54 measurement
- Mod. 321 adaptor for 76-88 measurement and press 1 of 108
- Mod. 322 adaptor for press 2 of 108
- Clamp 42
- Clamp 54
- Clamp 76
- Clamp 88.9
- Clamp 108
- Metal case TZ42-54
- Metal case TZ 76-88 + Adap.321
- Metal case Tz 108 + Adap. 321 + 322

TECHNICAL SPECIFICATIONS	
Weight	8 kg
Length	420 mm
Height	110 mm
Width	85 mm
Power	560 W
Pressure	Max. 45 kW
Stroke	45 mm