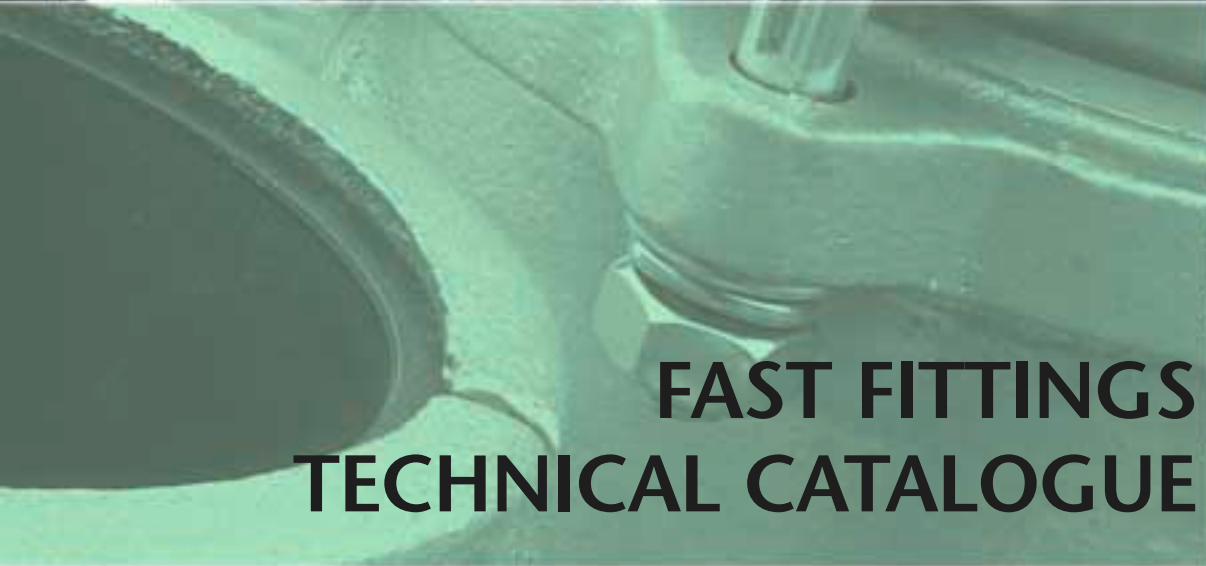


ATUSA



FAST FITTINGS TECHNICAL CATALOGUE



INTRODUCTION






EO Fast Fittings are designed to join steel, polyethylene and other various pipes. It is a compression system developed to give End Load capability and ensures that the installation is not leaking.

This completely new system optimises and simplifies the following operations:

- **Assembly** of new installations.
- Corrective and preventive **maintenance** of the existing installations.
- **Modification** of an existing installation, by substitution of components or incorporation of new elements (valves, measuring and control tools, etc.) that were not originally planned.

EO Fast Fittings range, alternative or complementary to the threaded fittings, is grouped with the following programme:

TYPES:		APPLICATIONS:
1 <u>Fast Fittings</u>		General applications: - New assemblies. - Maintenance. - Modifications.
2 <u>Intake Clamps</u>		Specially designed for new derivations and/or branches and for modifications of existing installations.
3 <u>Reparation Clamps</u>		Developed as repair/maintenance clamps.

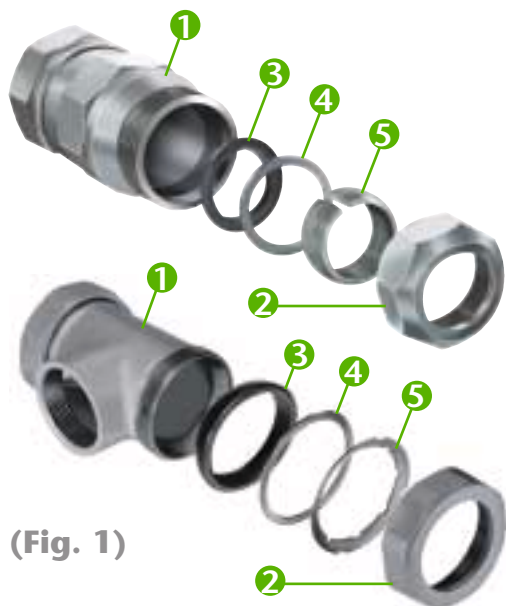
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COMPONENTS AND MATERIALS

FAST FITTINGS WITH NUT



(Fig. 1)

1 and 2 Bodies and compression nut: White Heart malleable cast iron GJMW 400-05, according to EN 1562, hot dip galvanised.

3 Rubber seal:

NBR Elastomere Shore A80 according to DIN 3535-3, suitable for sanitary and potable use, combustible gases (natural, manufactured gas and LPG) and not combustible (air,...) and apolaric hydrocarbons (gas-oil)

4 Washer: normalised steel.

5 Locking ring: normalised steel with special grooves.

FLANGED FAST FITTINGS

1 and 2 Body and compression flange: White Heart malleable cast iron GJMW 400-05, according to EN 1562, hot dip galvanised.

External metallic assembly components by tightening of the flange with the body:

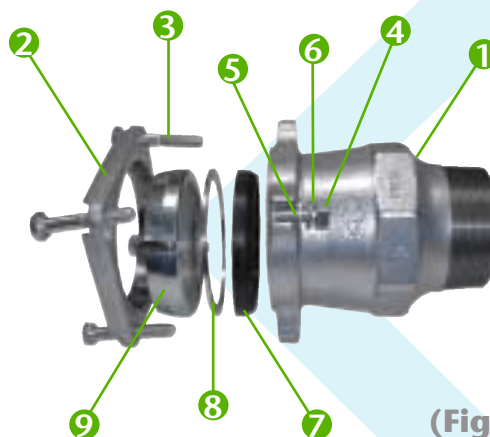
3 screw, **4** nuts, **5** flat washers, **6** Grower washers.

Internal assembly components:

7 NBR elastomeric rubber seal Shore A80 according to DIN 3535-3 standard,

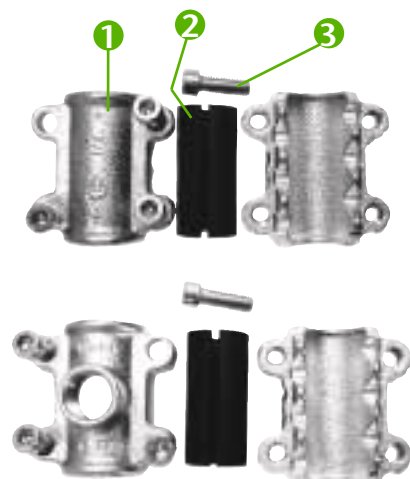
8 metallic washers in normalised steel,

9 locking ring in normalised steel.



(Fig. 2)

INTAKE AND REPAIR CLAMPS



(Fig. 3)

1 body made by White Heart malleable cast iron GJMW 400-05, according to EN 1562, galvanised.

2 Rubber seals, suitable for sanitary and drinkable water and for other several fluids.

3 Screws M10 in normalised steel, galvanised.

DESIGN PARAMETERS

Working conditions: With steel pipes EN 10255, EN 10208-1 or equivalents DIN 2440, 2441, 2442, 2448, series 1, 2458 series 1, BS 1387, ISO 65 and plastic pipes HDPE and LDPE.

	Pressure	Temperature
Water	-0,8 to 25 bar	-20° to +80°C
Gas	up to 1 bar	-20° to +70°C

Having in mind that EO fast fittings system could be used with higher values to those indicated above, in these cases please consult the supplier.

With plastic pipes, maximum working pressure is the nominal maximum pressure of the pipe. When using plastic pipes for gas conduction, it is necessary to insert a metallic liner.

Alignment: +/- 3 °

Axial mobility: EO Fast Fittings system has no axial mobility up to 1 bar pressure. For pressures higher than 1 bar, steel pipe could suffer any axial displacement (up to 3 mm) up to readjustment of the locking ring.

Torsion angle (β): EO Fast fittings have not been designed specifically to support torsion angles.

Tensile strength: EO Fast fittings are resistant to tensile strength resulting from the longitudinal strength of the working conditions.

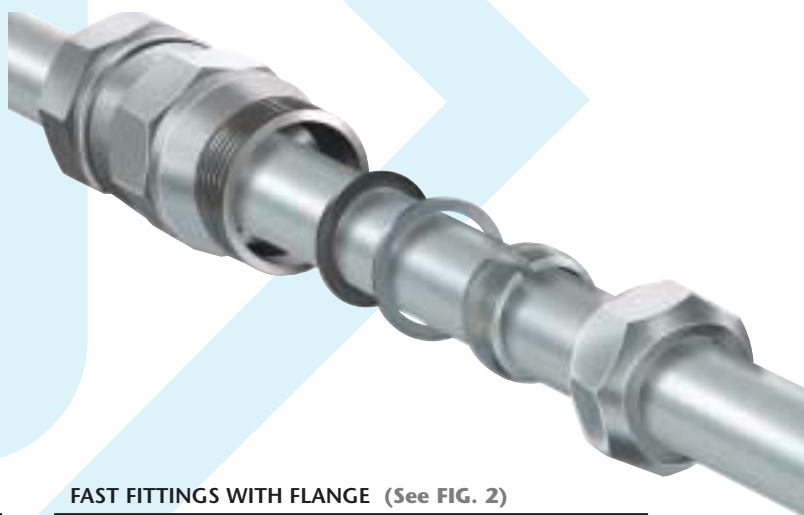
Sliding resistance: EO Fast fittings are resistant to the external axial sliding strength.

INSTRUCTIONS FOR A CORRECT ASSEMBLY

FAST FITTINGS

Especially when we are in a new assembly, to reach a faster and safer leakiness, it is necessary to remove previously the piece.

- Cut the pipe to be connected perpendicularly to the axis and eliminate all outside and inside dirtiness in order to make the pipe end completely smooth.
- Clean externally and internally the end of the pipe, especially where the joint would be made, ensuring it is free of grease, dirt, loose particles etc.
- The position and order of the different elements is as follows:



FAST FITTINGS WITH NUT (See FIG. 1)

- 1° Compression nut ②
- 2° Locking ring ⑤ *
- 3° Washer ④
- 4° Rubber seal ③
- 5° Body ①

* If assembly without angularity, put the nick of the locking ring against the nut.

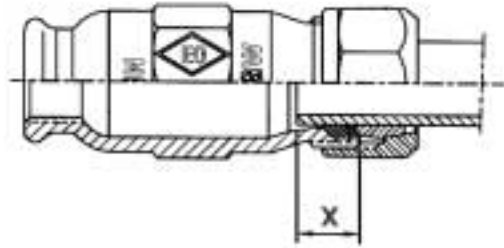
If assembly with angularity, put the nick of the locking ring against the washer.

FAST FITTINGS WITH FLANGE (See FIG. 2)

- 1° Compression flange ②
- 2° Locking ring ⑨
- 3° Washer ⑧
- 4° Rubber seal ⑦
- 5° Body ①

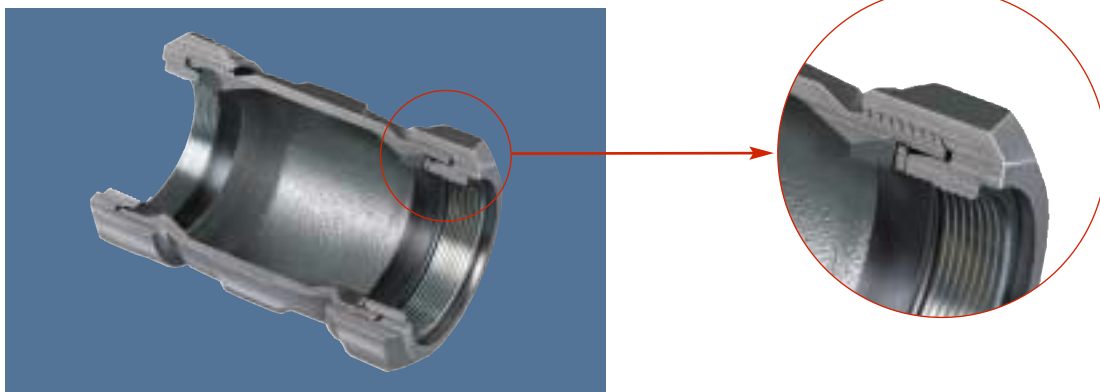
- To guarantee a correct joint it is very important that the locking ring of the Fast Fitting is located cone to cone, in the nut or flange, and assembled correctly on the pipe axis.

- The insertion length (x) of the pipe inside the Fast Fitting will be as indicated in the table of models and dimensions. The indicated values correspond to the final assembly.



- Once the body is blocked with the help of an auxiliary tool, pipe should be assembled as well as the nut or flange to proceed to its tightening or hand screwing.

To end the assembly, it is necessary to tighten up to the end by a suitable tool.



- Internal jointing components should be used only once. By substitution of those by other new jointing components, new assemblies could be done as first time.
- Each piece of the EO Fast Fittings system is a set individually adjusted, not being possible to exchange assembly elements with nuts, flanges or bodies produced by other manufacturers.

INTAKE AND REPARATION CLAMPS



- Be sure that in the part to be repaired or derivate, the pipe is not rough or has not significant deformations that will avoid the correct adjustment of the rubber seal.
- Clean dirtiness, grease, etc from the part to be repaired or derivate.
- In reparation clamps, the rubber seal should remain well located in the seat of the bodies with its opening in the opposite part of the leak.
- In intake clamps, the hole of the pipe should correctly match with the hole of the rubber seal avoiding to strangle the fluid.
- Fix the bodies with the rubber seal by hand, starting the operation with the part of the body in which the screws are going to be tightening.
- Finally, put the screws and screw on to the end.

TYPES	APPLICATION	TEMPERATURE	PRESSURE
Fast Fittings	Water (drinkable and sanitary, and other general uses as irrigation, washing, etc)	-20 to +80°	-0,8 to 25 bar
Intake Clamp	Combustibles	-20 to +80°	up to 1 bar
	Compressed air	ambient	up to 7 bar
Reparation Clamp	Oil and apolaric hydrocarbons	up to 70°	up to 15 bar

Having in mind that EO fast fittings system could be used with higher values to those indicated above, in these cases please consult the supplier.

REFERENCE BASIC TECHNICAL STANDARDS

Fast Fittings:

- product according to DIN 3387
- NBR Rubber seal shore A80 according to DIN 3535-3
- threads - pressure tight according to ISO 7/1 (PrEN 10226/1)
- threads - not pressure tight according to ISO-EN 228/1

QUALITY CERTIFICATION

Fast Fittings

- Product DIN-DVGW
 - Water: No. DW-8511BN06026
 - Gas: No. NG-4502BN0540

- Registered firm EN ISO 9001



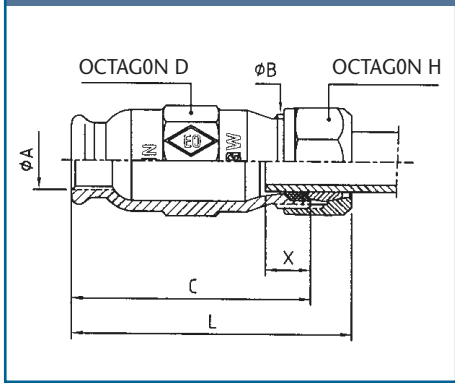
ISO 9001

INSPECTION DOCUMENTS

Under request of the customer or by previous agreement, ATUSA could settle a Certificate of conformity, types 2.1 or 2.2 according to the EN 10204 standard.



740 JOINT FEMALE

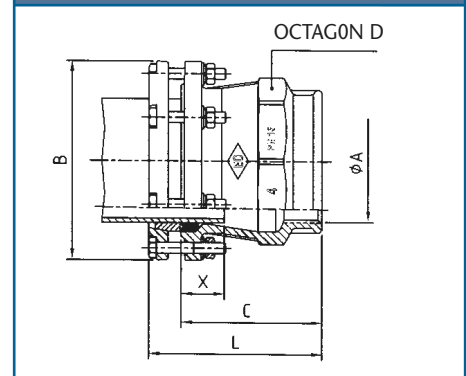


Reference	Codes	Weight (kg)	Uts/Box	blister
740 - 3/8	740A5002	0,210	150	5
740A - 1/2	740A5003	0,355	115	5
740A - 3/4	740A5004	0,509	70	5
740A - 1	740A5005	0,599	52	4
740A - 1 1/4	740A5006	0,854	36	4
740A - 1 1/2	740A5007	1,130	24	3
740A - 2	740A5008	1,556	14	2
740A - 2 1/2	740A5009	1,510	12	2

A Ø	B Ø	C (mm)	D (mm)	H (mm)	L (mm)	X Max (mm)	X Min (mm)
Rp 3/8	G 7/8	60	28	35,5	73	36	30
Rp 1/2	G 1	85	36	38,0	96	60	16
Rp 3/4	G 1 1/4	85	46	48,0	98	60	19
Rp 1	G 1 1/2	85	51	55,0	99	60	21
Rp 1 1/4	G 2	100	60	67,0	114	65	22
Rp 1 1/2	G 2 1/4	100	70	75,0	115	65	24
Rp 2	G 2 3/4	115	84	90,0	130	75	24
Rp 2 1/2	G 3 1/4	82,8	88,7	101,5	99	57	45

Reference	Codes	Weight (kg)	Uts/Bpx	blister
740A - 3	740A500A	3,770	6	-
740A - 4	740A500C	5,140	3	-

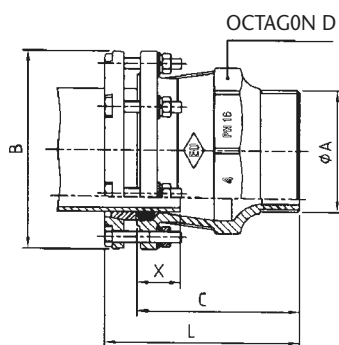
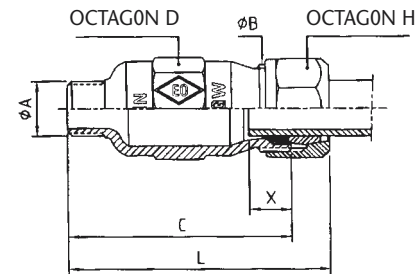
A Ø	B (mm)	C (mm)	D (mm)	L (mm)	X Max (mm)	X Min (mm)	N° screws
Rp 3"	163	130	118	150	80	35	4
Rp 4"	182	131	144	152	80	40	6



746 JOINT MALE

Reference	Codes	Weight (kg)	Uts/Box	blister
746A - 3/8	746A5002	0,195	150	5
746A - 1/2	746A5003	0,318	115	5
746A - 3/4	746A5004	0,481	70	5
746A - 1	746A5005	0,578	52	4
746A - 1 1/4	746A5006	0,857	36	4
746A - 1 1/2	746A5007	1,083	24	3
746A - 2	746A5008	1,540	14	2
746A - 2 1/2	746A5009	1,422	12	2

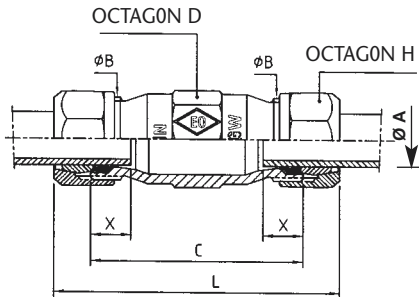
A Ø	B Ø	C (mm)	D (mm)	H (mm)	L (mm)	X Max (mm)	X Min (mm)
R 3/8	G 7/8	60	28	35,5	73	36	30
R 1/2	G 1	85	36	38,0	96	60	16
R 3/4	G 1 1/4	85	46	48,0	98	60	19
R 1	G 1 1/2	85	51	55,0	91	60	21
R 1 1/4	G 2	100	60	67,0	114	65	22
R 1 1/2	G 2 1/4	100	70	75,0	115	65	24
R 2	G 2 3/4	115	84	90,0	143	75	24
R 2 1/2	G 3 1/4	89,2	88,7	101,5	105,4	60	45



Reference	Codes	Weight (kg)	Uts/Box	blister
746A - 3	746A500A	3,944	6	-
746A - 4	746A500C	5,865	3	-

A Ø	B (mm)	C (mm)	D (mm)	L (mm)	X Max (mm)	X Min (mm)	N° screws
R 3"	163	151	118	171	80	35	4
R 4"	182	152	144	173	80	40	6

770 DOUBLE JOINT

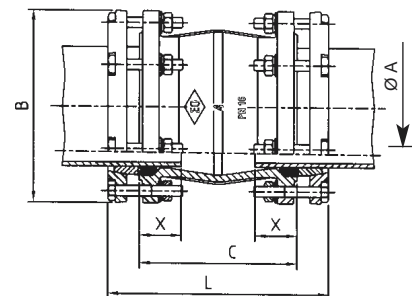
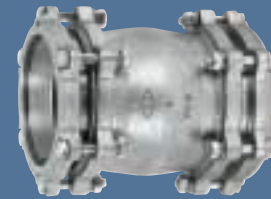


Reference	Codes	Weight (kg)	Uts/Box	blister
770A - 1/2	770A5003	0,416	100	5
770A - 3/4	770A5004	0,654	60	5
770A - 1	770A5005	0,810	40	4
770A - 1 1/4	770A5006	1,162	24	3
770A - 1 1/2	770A5007	1,553	18	3
770A - 2	770A5008	2,178	12	2
770A - 2 1/2	770A5009	2,000	11	1

A Ø	B Ø	C (mm)	D (mm)	H (mm)	L (mm)	X Max (mm)	X Min (mm)
1/2"	G 1	85	36	38,0	106	40	16
3/4"	G 1 1/4	85	46	48,0	111	40	19
1"	G 1 1/2	85	51	55,0	117	40	21
1 1/4"	G 2	100	60	67,0	124	65	22
1 1/2"	G 2 1/4	100	70	75,0	129	65	24
2"	G 2 3/4	115	84	90,0	143	55	24
2 1/2"	G 3 1/4	88,7	89	101,5	123	44	35

Reference	Codes	Weight (kg)	Uts/Box	blister
770A - 3	740A500A	5,587	6	-
770A - 4	740A500C	8,135	3	-

A Ø	B (mm)	C (mm)	L (mm)	X Max (mm)	X Min (mm)	N° screws
3"	163	150	190	65	35	4
4"	182	151	194	65	40	6



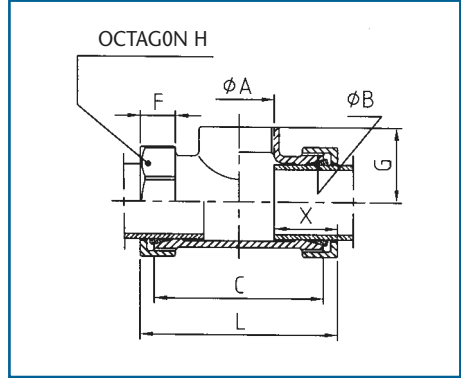


730 JOINT TEE 90° WITH FEMALE THREAD

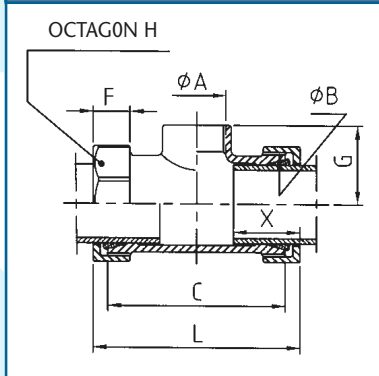
Reference	Codes	Weight (kg)	Uts/Box	blister
730 - 1/2	730A5003	0,438	60	-
730 - 3/4	730A5004	0,568	40	-
730 - 1	730A5005	0,796	30	-
730 - 1 1/4	730A5006	0,992	20	-
730 - 1 1/2	730A5007	1,448	15	-
730 - 2	730A5008	1,954	10	-



A Ø	B Ø	C (mm)	F (mm)	G (mm)	H (mm)	L (mm)	X (mm)
Rp 1/2	special dimension	80	20	30	44	96	38
Rp 3/4		80	20	35	51	96	38
Rp 1		90	22	40	59	108	44
Rp 1 1/4		100	22	45	67	118	44
Rp 1 1/2		111	25	50	76	130	51
Rp 2		120	25	60	89	142	51



730 JOINT TEE 90° WITH REDUCING FEMALE THREAD



Reference	Codes	Weight Kg	Uts/Box	A Ø	C (mm)	F (mm)	G (mm)	H (mm)	L (mm)	X (mm)
730 - 3/4 x 1/2 x 3/4	730A5434	0,554	45	Rp 1/2	80	20	35	51	100-92	38
730 - 1 x 1/2 x 1	730A5535	0,718	35	Rp 1/2	82	22	36	59	104-98	44
730 - 1 x 3/4 x 1	730A5545	0,756	30	Rp 3/4	90	22	40	59	112-106	44
730 - 1 1/4 x 1/2 x 1 1/4	730A5636	0,840	25	Rp 1/2	86	22	40	67	108-102	44
730 - 1 1/4 x 3/4 x 1 1/4	730A5646	0,870	25	Rp 3/4	92	22	42	67	114-108	44
730 - 1 1/4 x 1 x 1 1/4	730A5656	0,970	20	Rp 1	100	22	45	66	122-116	44
730 - 1 1/2 x 1/2 x 1 1/2	730A5737	1,208	15	Rp 1/2	92	25	44	76	117-108	51
730 - 1 1/2 x 3/4 x 1 1/2	730A5747	1,258	15	Rp 3/4	98	25	46	76	123-114	51
730 - 1 1/2 x 1 x 1 1/2	730A5757	1,300	15	Rp 1	104	25	48	76	129-120	51
730 - 1 1/2 x 1 1/4 x 1 1/2	730A5767	1,402	15	Rp 1 1/4	110	25	50	76	135-126	51
730 - 2 x 1/2 x 2	730A5838	1,582	15	Rp 1/2	96	25	50	89	122-113	51
730 - 2 x 3/4 x 2	730A5848	1,650	15	Rp 3/4	102	25	52	89	128-119	51
730 - 2 x 1 x 2	730A5858	1,714	12	Rp 1	108	25	54	89	134-125	51
730 - 2 x 1 1/4 x 2	730A5868	1,788	12	Rp 1 1/4	116	25	57	89	142-133	51
730 - 2 x 1 1/2 x 2	730A5878	1,888	12	Rp 1 1/2	120	25	60	89	146-137	51
730 - 2 1/2 x 2 x 2 1/2	730A5989	3,126	6	Rp 2	160	26	70	110	189-179	57
730 - 3 x 2 x 3	730A5A8A	3,800	4	Rp 2	170	27	77	127	200-189	62

Ø B = special dimension



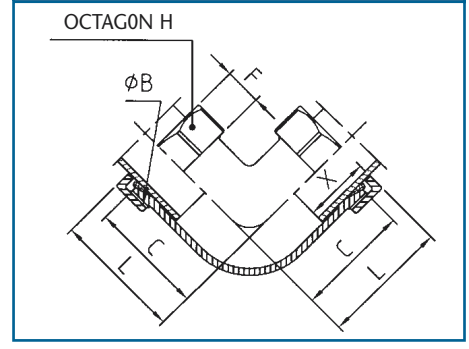


790 DOUBLE JOINT ELBOW 90°

Reference	Codes	Weight (kg)	Uts/Box	blister
790 - 1/2	790A5003	0,448	70	-
790 - 3/4	790A5004	0,602	50	-
790 - 1	790A5005	0,828	30	-
790 - 1 1/4	790A5006	1,022	20	-
790 - 1 1/2	790A5007	1,494	15	-
790 - 2	790A5008	1,918	10	-
790 - 2 1/2	790A5009	3,112	6	-
790 - 3	790A500A	3,976	4	-



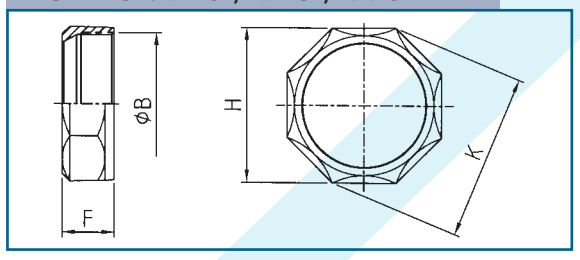
A Ø	B Ø	C (mm)	F (mm)	H (mm)	L (mm)	X (mm)
-	special dimension	50	20	44	58	STOPPER
-		55	20	51	63	
-		60	22	59	69	
-		65	22	67	74	
-		70	25	76	80	
-		75	25	89	84	
-		85	26	110	94,5	
-		95	27	127	104,5	



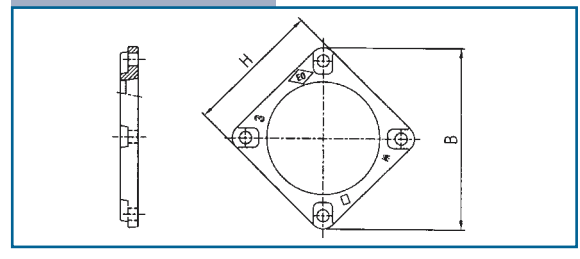
TIGHTENING ELEMENTS (NUTS AND FLANGES)

A Ø	B Ø	B (mm)	F (mm)	H (mm)	K (mm)
3/8"	G 7/8	-	24	35,5	38,0
1/2"	G 1	-	24	38,0	41,0
3/4"	G 1 1/4	-	27	48,0	52,0
1"	G 1 1/2	-	28	55,0	59,0
1 1/4"	G 2	-	28	67,0	73,0
1 1/2"	G 2 1/4	-	32	75,0	81,0
2"	G 2 3/4	-	32	90,0	97,0
2 1/2"	G 3 1/4	-	34	101,5	109,0
3"	-	163	-	121,0	-
4"	-	182	-	-	-

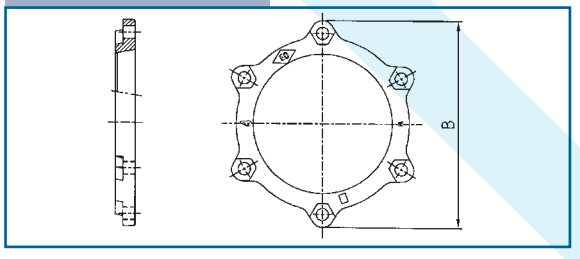
NUT FOR 740 / 746 / 770



FLANGE 3"

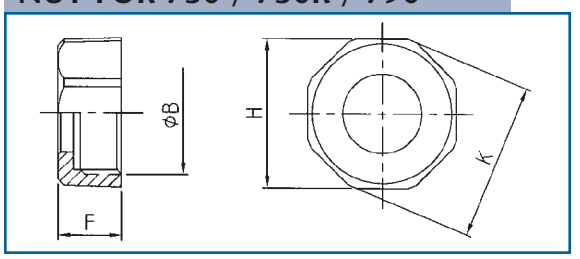


FLANGE 4"



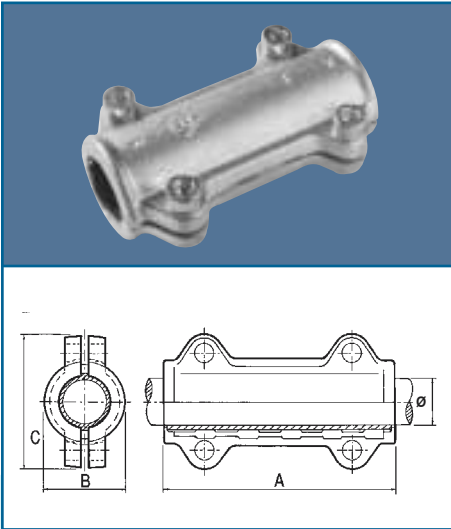
A Ø	B Ø	F (mm)	H (mm)	K (mm)
1/2"	special dimension	20	44	46,0
3/4"		20	51	54,0
1"		22	59	61,5
1 1/4"		22	67	70,0
1 1/2"		25	76	78,3
2"		25	89	92,5
2 1/2"		26	110	113,0
3"		27	127	131,5

NUT FOR 730 / 730R / 790





CHRYSSAFIDIS

ATUSA
710 LONG REPARATION CLAMP


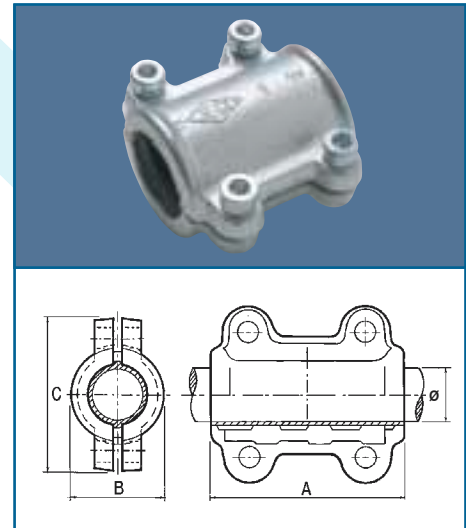
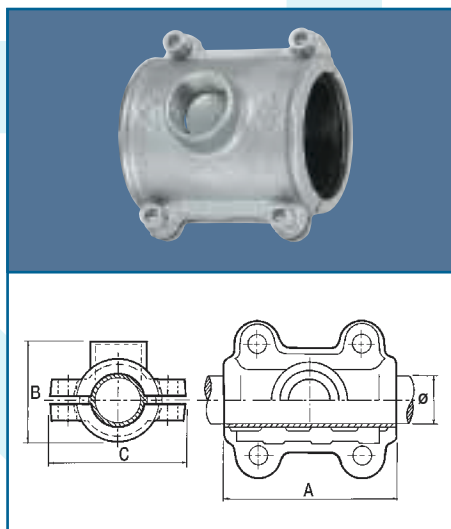
Reference	Codes	Weight (kg)	Uts/Box	blister
710 - 1/2	710A5003	0,940	35	-
710 - 3/4	710A5004	1,040	30	-
710 - 1	710A5005	1,170	25	-
710 - 1 1/4	710A5006	1,332	20	-
710 - 1 1/2	710A5007	1,467	15	-
710 - 2	710A5008	1,727	10	-
710 - 2 1/2	710A5009	2,112	9	-
710 - 3	710A500A	2,792	6	-
710 - 4	710A500C	3,284	4	-

DN	Dimension	Ø (mm)	a (mm)	b (mm)	c (mm)
15	1/2	21,0	140	42	75
20	3/4	26,9	140	48	81
25	1	33,7	140	54	88
32	1 1/4	42,4	140	65	102
40	1 1/2	48,3	140	72	108
50	2	60,3	140	87	122
65	2 1/2	76,1	140	105	138
80	3	88,9	160	117	152
100	4	114,3	160	144	176

715 SHORT REPARATION CLAMP

Reference	Codes	Weight (kg)	Uts/Box	blister
715 - 1/2	715A5003	0,408	80	-
715 - 3/4	715A5004	0,437	70	-
715 - 1	715A5005	0,480	50	-
715 - 1 1/4	715A5006	0,599	36	-
715 - 1 1/2	715A5007	0,821	30	-
715 - 2	715A5008	0,971	24	-

DN	Dimension	Ø (mm)	a (mm)	b (mm)	c (mm)
15	1/2	21,0	70	38	67
20	3/4	26,9	70	42	73
25	1	33,7	70	49	80
32	1 1/4	42,4	80	60	94
40	1 1/2	48,3	100	65	99
50	2	60,3	100	79	114


720 INTAKE CLAMP


Reference	Codes	Weight (kg)	Uts/Box	blister
720 - 1/2 - 1/2	720A5033	0,423	70	-
720 - 3/4 - 1/2	720A5043	0,444	65	-
720 - 1 - 1/2	720A5053	0,489	50	-
720 - 1 1/4 - 3/4	720A5064	0,639	30	-
720 - 1 1/2 - 3/4	720A5074	0,865	30	-
720 - 2 - 1	720A5085	1,042	22	-

DN	Dimension	Ø (mm)	a (mm)	b (mm)	c (mm)
15	1/2 - 1/2	21,0	70	43	67
20	3/4 - 1/2	26,9	70	49	73
25	1 - 1/2	33,7	70	57	80
32	1 1/4 - 3/4	42,4	80	68	94
40	1 1/2 - 3/4	48,3	100	73	99
50	2 - 1	60,3	100	89	114

5

COMMON PRACTICAL APPLICATIONS EXAMPLES



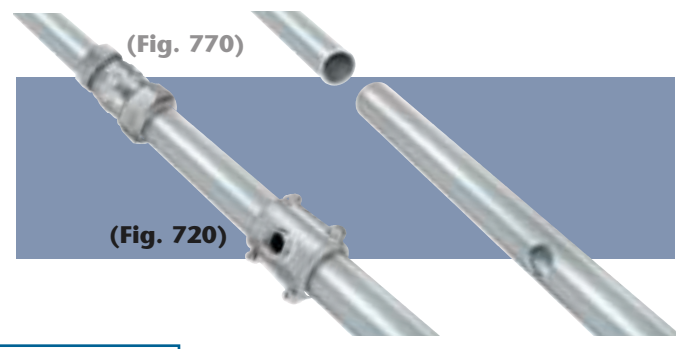
CHRYSSAFIDIS

Joint through mechanic compression system, that defines to the EO fast fittings, has been largely experienced with very satisfactory results in very different applications, traditional (drinkable and sanitary water, irrigation), gas, compressed air, petrol stations,... as well as other recent applications (fire protection systems).

In all cases, it is mandatory to have in mind technical specifications related to its design, assembly and working conditions.

ASSEMBLY OF A NEW INSTALLATION THROUGH

- Double joint (Fig. 770)
- Intake clamp (Fig. 720)

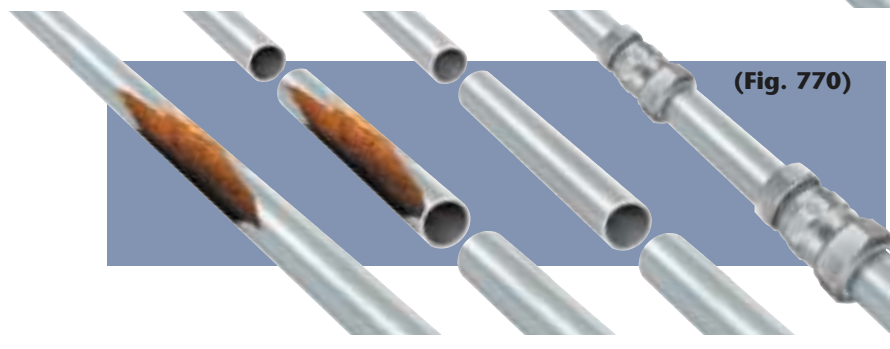
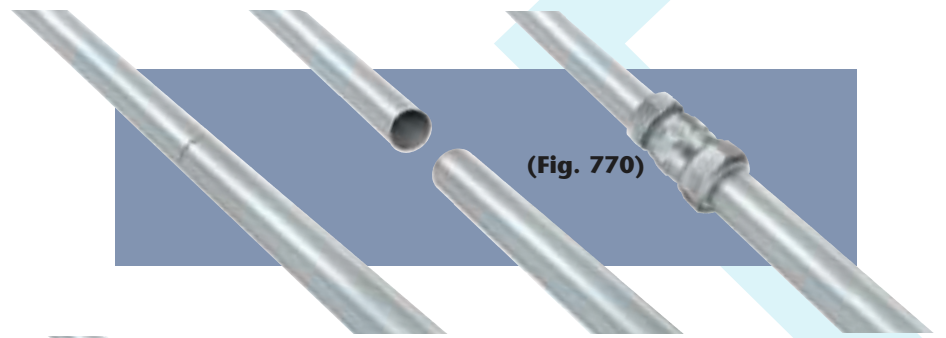


REPAIR OF EXISTING INSTALLATIONS

- Pore or small longitudinal fissure and reparation trough Reparation Clamp.



- Significant fissure and reparation through Double Joint, Fig. 770, cutting previously affected part.



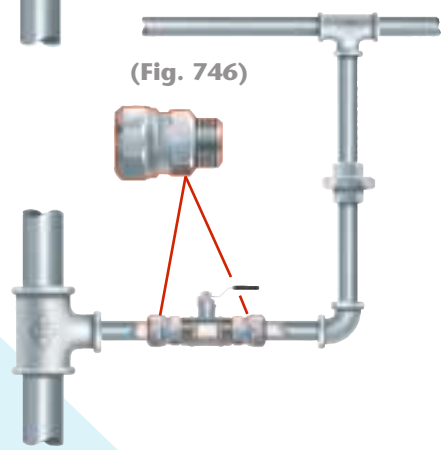
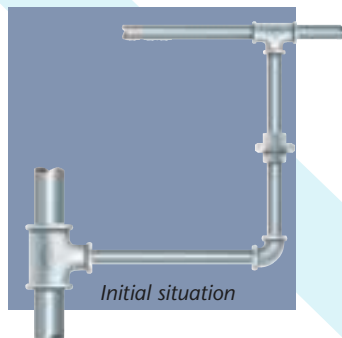
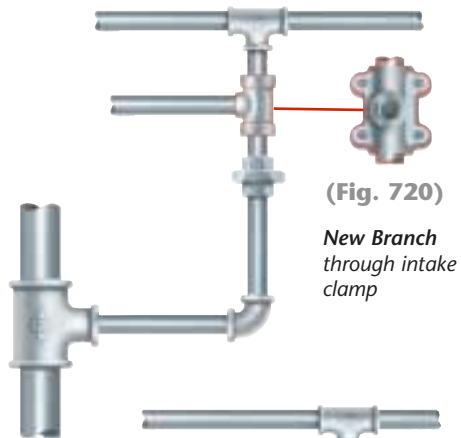
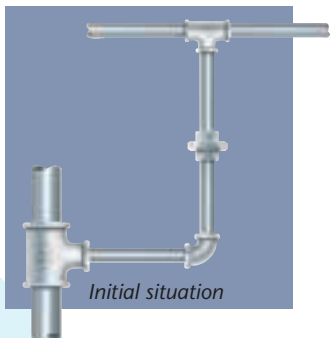
- Oxidation source and reparation through Double Joint, Fig. 770, cutting previously and by substitution of the affected part of the pipe.

- Deformation of a visible part of the pipe, caused by an external charge and reparation through Double Joint, with the same procedure as in the previous situation.

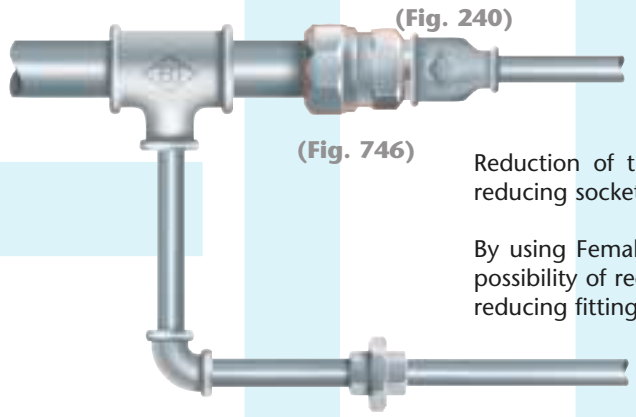


CHANGE ON EXISTING INSTALLATIONS

- To add a new branch by using an Intake Clamp (fig.720), on an existing installation
- To include new elements to an installation: valve, filter, pressure regulator, ball valve, etc., that were not originally planned, by using Female joints (fig.740) or Male joints (fig. 746)



PRACTICAL AND SIMPLE CONNECTIONS TO EXISTING INSTALLATIONS



Reduction of the pipe through a Male Fast Fittings (fig.746) and a reducing socket (fig. EO 240).
By using Female (fig. 740) or Male Fast Fittings (fig.746), giving easy possibility of reducing the pipes through the use of threaded malleable reducing fittings.

QUICK CONNECTIONS IN IRRIGATION INSTALLATIONS

The wide range of Fast Fittings, Intake and Repair Clamps are designed to allow quick substitution of component parts, within the joint, thus providing versatility and allowing fast jointing to suit the required application.

6 WRONG APPLICATIONS

- 1 In vertical installations, submitted permanently to tensile strength and/or high vibrations. Ex. Submersible pumps connection.
- 2 When installed in the end of the conduction lines, as plugs or ball valves connection, if the permanent maintenance of the installation is not guaranteed.

