



**FAST  
FITTINGS**

T E C H N I C A L M A N U A L

# MALLEABLE CAST IRON FAST FITTINGS



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## 1.1. COMPRESSION SYSTEM

Mechanical compression joints are based on the binding of a flat pipe using an open tapered metal ring, whose diameter is reduced due to the effect of pressure of the turning of the threads of the nut (in which it is based) or through the tightening of a bracket.

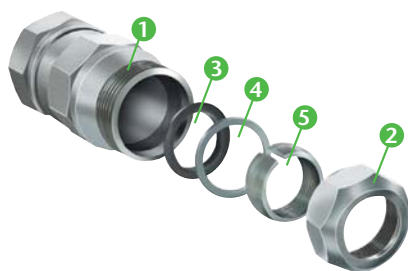
The **JR EO "EO Fast Fittings"** which adhere to the DIN 3387-1 standard are designed to bring about the union of flat end pipes through mechanical compression, in such a way that, under the necessary working conditions, there is no leakage in the installation.

This system optimises and simplifies the following operations:

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

## 1.2. COMPONENTS OF THE SYSTEM

### FAST FITTINGS WITH NUT TIGHTENING FROM 3/8" (DN10) TO 2 1/2" (DN65)



#### DESCRIPTION

1 2 6

#### BODIES, NUT AND COMPRESSION FLANGE:

Malleable cast iron, generally white heart (GJMW400-05 according to EN 1562), **hot dip galvanized**.

3 11

#### RUBBER SEAL

- NBR: Elastomere Shore standard (GBL according to EN 682 standard).
- EPDM: upon request.
- Others: FPM,... upon request.

4

#### WASHER

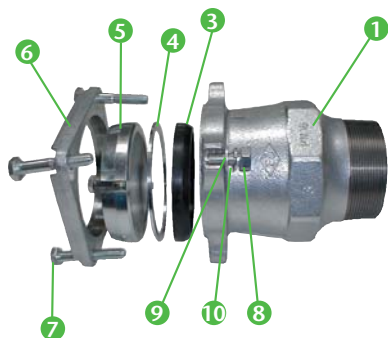
Manufactured in normalised steel.

5

#### LOCKING RING

Manufactured in normalised steel.

### FLANGED FAST FITTINGS WITH TIGHTENING OF 3" (DN80) AND 4" (DN 100)



### INTAKE CLAMP FROM 1/2" (DN15) TO 2" (DN50)



### REPAIR CLAMP SHORT

Short: from 1/2" (DN15) to 2" (DN50)

Long: from 1/2" (DN15) to 4" (DN100)



7 8

#### SCREWS AND HEXAGONAL NUTS

Manufactured in normalised steel Class 8.8

9

#### FLAT RING

Manufactured in normalised steel.

10

#### GROWER PRESSURE WASHER

Manufactured in normalised steel.

12

#### ALLEN HEAD SCREWS M10

Manufactured in normalised steel.

### 1.3. BASIC TECHNICAL CHARACTERISTICS

#### DESIGN PARAMETERS

##### Joining of pipes

Steel pipes according to En 10255, EN 10208-1, EN 10216-1, EN 10217-1 and ISO 65 standards.

##### Working conditions

Fluid	Pressure (bar)	Temperature (°C)
Water	-0,8 a 25	-20 a 80
Gas	$\leq 1$	-20 a 70
Compressed air	$\leq 7$	athmosphere
Oils and apolaric hydrocarbons	$\leq 15$	70

Note: The JR EO system can be used with values over those indicated (in such cases please contact the supplier)

##### Sealing joints

- NBR – suitable for sanitary water, combustible gases (natural, city, GLP) and non combustible (air, inert gases,...) , diesel, ...
- EPDM : suitable for drinking water (on special request).

**Angular flexibility:** angular alignment tolerance  $\pm 3^\circ$ .

**Axial mobility:** JR EO Fast fittings have no axial mobility up to a pressure of 1 bar. For pressures much higher than 1 bar, the steel pipe could suffer some axial displacement (up to 3mm) until the locking ring is readjusted.

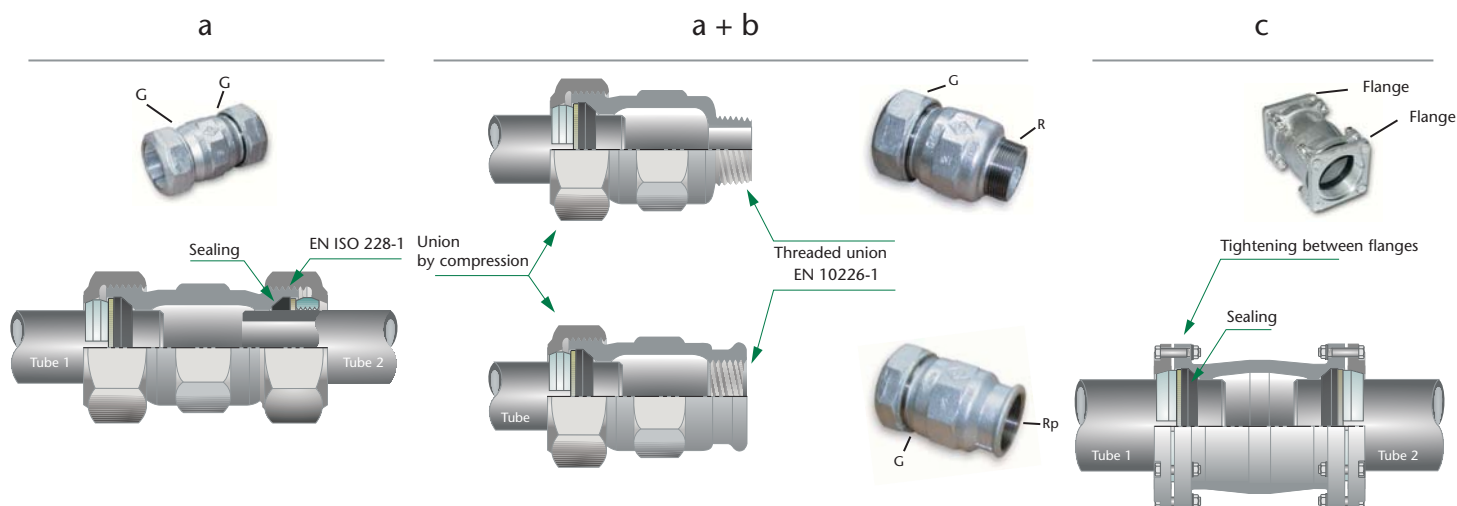
**Torsion angle ( $\beta$ ):** JR EO Fast fittings have not been designed to deal with torsion angles.

**Tensile strength:** Because of the longitudinal strength of the working conditions, the JR EO Fast fittings are resistant to tensile strength.

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

##### Types of threads

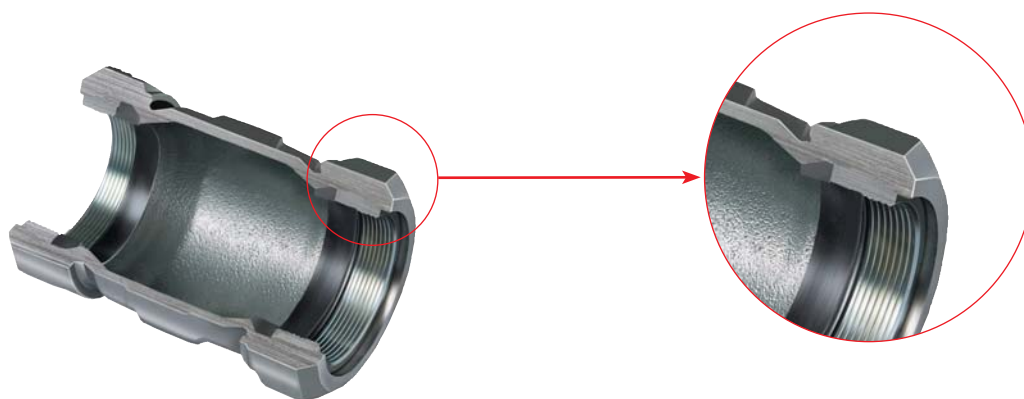
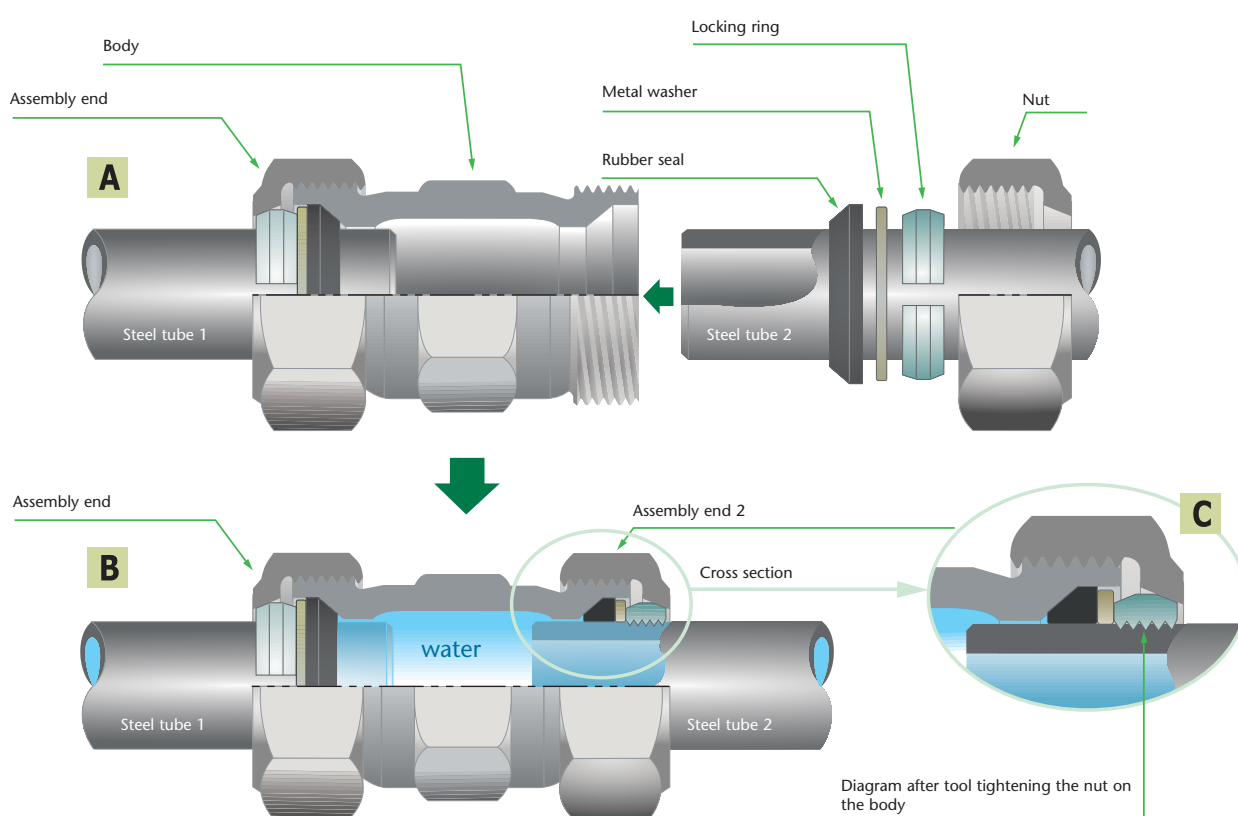
- Compression ends nut-body (fastening threads) (EN-ISO 228-1):** in the ends where the pressure is produced , the union of the nut ( Internal Thread) with the body of the piece is carried out using non sealing threads.
- Joining threads (pressure tight joints are made on the threads) (EN 10226-1, ISO 7-1):** the threaded union between the threaded ends of the piece with other threaded end elements, it is a type R (external) – Rp (internal) sealed threaded union.
- Compression ends flange-body:** there is no threaded union, it is a clamped union using the tightening of the corresponding screws.



## BASIC OPERATION

Having introduced the nut and the internal components (locking ring, washer, and rubber seal) in the correct order (Diagram A), the steel pipe is inserted in the compression end of the base body by screwing the nut on the body. While the nut is being tightened, the locking ring is inserted into the cone of the nut and its diameter is reduced causing (due to the grooves of the ring) binding and immobilizing the pipe (Diagram B). At the same time, the elastomere joint is adjusted (with the aid of the metallic washer which acts as a force provider) in the section against the end compression cone thus giving total sealing of the joint. (Diagram C).

Note: in the case of flanged pieces, the effect of the nut is carried out by the flange, which is tightened on the body of the piece using the screws.





## 1.4. CERTIFICATION



Amongst others, ATUSA holds the following certificates:



Quality Management Certification in accordance with standard UNE-EN ISO 9001:2008, issued by AENOR.



Implementation and Maintenance of Quality Management for the Manufacturing of Malleable Cast Iron Fittings.



Certification for Malleable Cast Iron Fast Fittings in accordance with the DIN-3387-1 standard for its use in the supply of gases, issued by DVGW.



Certification for sealing fittings (used in Malleable Cast Iron Fast Fittings) in accordance with the DIN-EN 682 standard (GBL – 800) and the technical VP 406-A7 norm, issued by DVGW.



Certification of Conformity of Production of galvanized Malleable Cast Iron Fittings (EO brand) for their use in the supply of fluids and gases in agreement with that required by the Royal Decree 2531/1985 and the 13.01.1999 Ministerial Order issued by the Ministry of Industry.



Sanitary Registration for Malleable Cast Iron Threaded Fittings in agreement with Annex IX of the Royal Decree 140/2003 issued by the Ministry of Health.



**730**  
1/2" to 2"



**730**  
2 1/2" and 3"



**730R**  
various



**730R**  
various



**740**  
3/8" to 2 1/2"



**740**  
3" and 4"



**746**  
3/8" to 2 1/2"



**746**  
3" and 4"



**770**  
1/2" to 2 1/2"



**770**  
3" and 4"



**790**  
1/2" to 2"



**790**  
2 1/2" and 3"



**710**  
1/2" to 4"



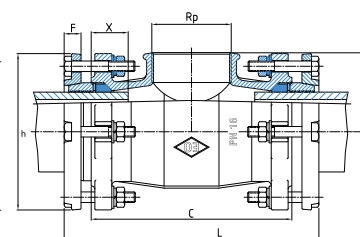
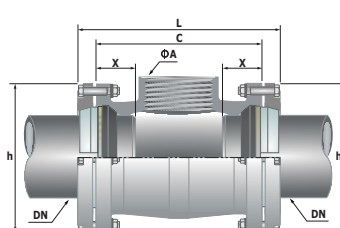
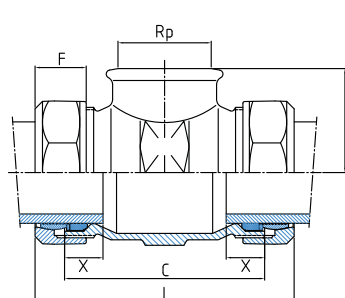
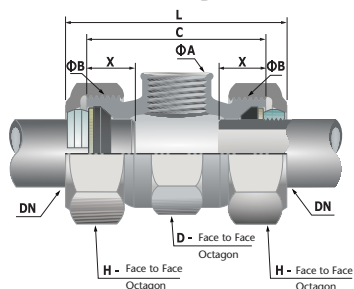
**715**  
1/2" to 2"



**720**  
various

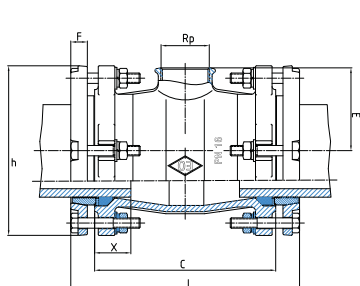
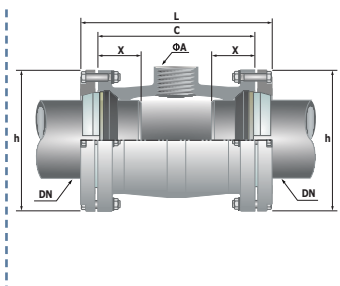
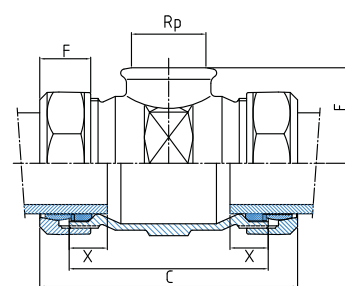
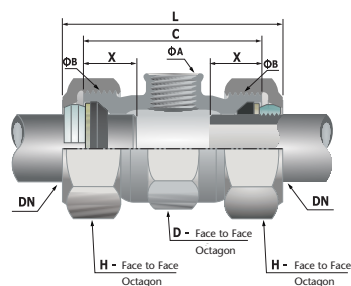
730

JOINT TEE



CODE	Description	DN	Tightening	Φ A	Φ B	h	C	D	E	F	H	L approx.	X max	X min	Nr. Screws	Kg (approx)
mm																
730A5003	730A Galv 1/2"	15	Nut	Rp 1/2	G 1	-	85	36	30	24	38	107	30	22	-	0,425
730A5004	730A Galv 3/4"	20	Nut	Rp 3/4	G 1 1/4	-	85	46	35	27	48	110	28	23	-	0,670
730A5005	730A Galv 1"	25	Nut	Rp 1	G 1 1/2	-	85	51	40	28	55	110	25	18	-	0,815
730A5006	730A Galv 1 1/4"	32	Nut	Rp 1 1/4	G 2	-	100	60	45	28	67	125	27	20	-	1,190
730A5007	730A Galv 1 1/2"	40	Nut	Rp 1 1/2	G 2 1/4	-	110	70	50	32	75	140	30	25	-	1,610
730A5008	730A Galv 2"	50	Nut	Rp 2	G 2 3/4	-	125	84	65	32	90	154	30	25	-	2,335
730A5009	730A Galv 2 1/2"	65	Flange	Rp 2 1/2	-	149	190	-	75	16	112	202	55	40	4	5,660
730A500A	730A Galv 3"	80	Flange	Rp 3	-	164	205	-	85	16	121	216	55	45	4	6,705

730R

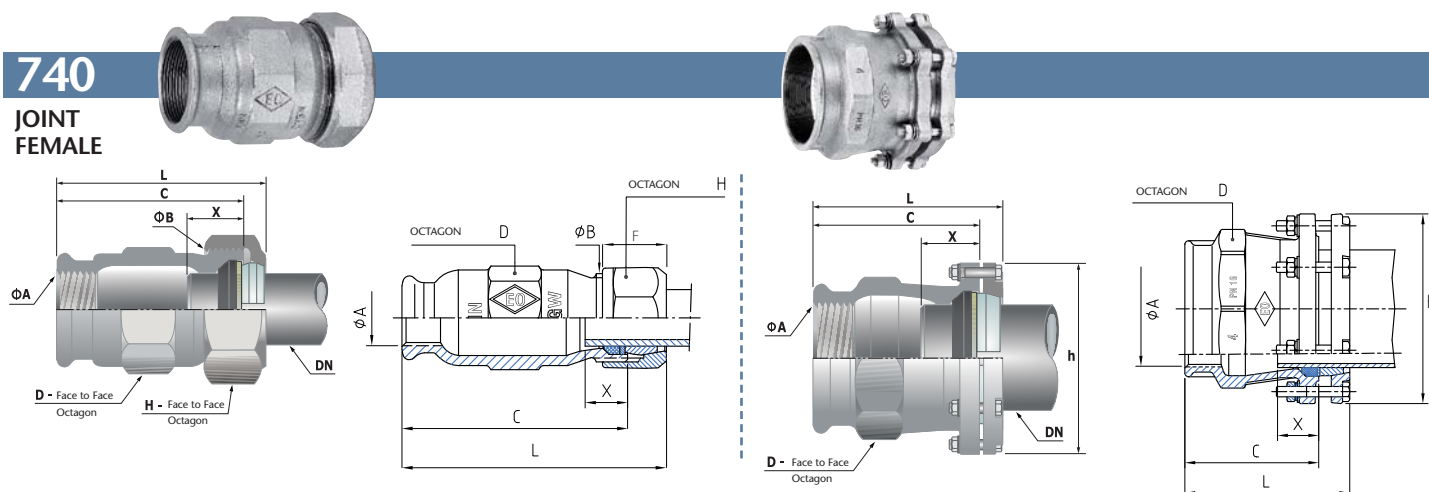
REDUCING  
JOINT TEE

CODE	Description	DN	Tightening	Φ A	Φ B	h	C	D	E	F	H	L approx.	X max	X min	Kg (approx)
						mm									
730A5434	730A Galv 3/4"-1/2"-3/4"	20x15x20	Nut	Rp 1/2	G 1 1/4	-	85	46	35	27	48	110	30	25	0,657
730A5535	730A Galv 1"-1/2"-1"	25x15x25	Nut	Rp 1/2	G 1 1/2	-	85	51	40	28	55	110	30	25	0,808
730A5545	730A Galv 1"-3/4"-1"	25x20x25	Nut	Rp 3/4	G 1 1/2	-	85	51	40	28	55	110	27	22	0,809
730A5636	730A Galv 1 1/4"-1/2"-1 1/4"	32x15x32	Nut	Rp 1/2	G 2	-	100	60	45	28	67	125	38	30	1,178
730A5646	730A Galv 1 1/4"-3/4"-1 1/4"	32x20x32	Nut	Rp 3/4	G 2	-	100	60	45	28	67	125	35	28	1,176
730A5656	730A Galv 1 1/4"-1"-1 1/4"	32x25x32	Nut	Rp 1	G 2	-	100	60	45	28	67	125	32	27	1,173
730A5737	730A Galv 1 1/2"-1/2"-1 1/2"	40x15x40	Nut	Rp 1/2	G 2 1/4	-	110	70	50	32	75	140	42	35	1,608
730A5747	730A Galv 1 1/2"-3/4"-1 1/2"	40x20x40	Nut	Rp 3/4	G 2 1/4	-	110	70	50	32	75	140	39	32	1,615
730A5757	730A Galv 1 1/2"-1"-1 1/2"	40x25x40	Nut	Rp 1	G 2 1/4	-	110	70	50	32	75	140	36	28	1,643
730A5767	730A Galv 1 1/2"-1 1/4"-1 1/2"	40x32x40	Nut	Rp 1 1/4	G 2 1/4	-	110	70	50	32	75	140	31	25	1,634
730A5838	730A Galv 2"-1/2"-2"	50x15x50	Nut	Rp 1/2	G 2 3/4	-	125	84	55	32	90	154	49	35	2,207
730A5848	730A Galv 2"-3/4"-2"	50x20x50	Nut	Rp 3/4	G 2 3/4	-	125	84	55	32	90	154	46	35	2,233
730A5858	730A Galv 2"-1"-2"	50x25x50	Nut	Rp 1	G 2 3/4	-	125	84	60	32	90	154	43	32	2,244
730A5868	730A Galv 2"-1 1/4"-2"	50x32x50	Nut	Rp 1 1/4	G 2 3/4	-	125	84	60	32	90	154	39	31	2,272
730A5878	730A Galv 2"-1 1/2"-2"	50x40x50	Nut	Rp 1 1/2	G 2 3/4	-	125	84	60	32	90	154	36	28	2,289
730A5989	730A Galv 2 1/2"-2"-2 1/2"	65x50x65	Flange	Rp 2	-	149	170	-	75	16	112	190	50	40	5,345
730A5A8A	730A Galv 3"-2"-3"	80x50x80	Flange	Rp 2	-	164	175	-	80	16	121	195	50	40	6,013



# 740

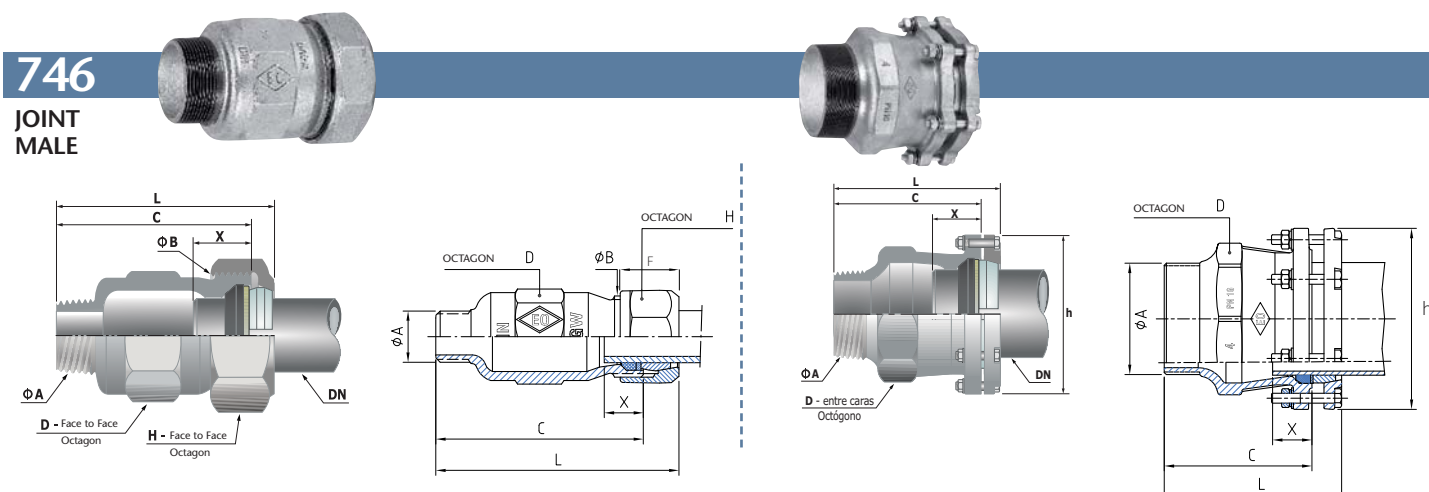
## JOINT FEMALE



CODE	Description	DN	Tightening	Φ A	Φ B	h	C	D	F	H	L approx.	X max	X min	Nr. Screws	Kg (approx)
mm															
740A5002	740A Galv 3/8"	10	Nut	Rp 3/8	G 7/8	-	60	27	24	36	73	35	30	-	0,204
740A5003	740A Galv 1/2"	15	Nut	Rp 1/2	G 1	-	85	36	24	38	96	60	26	-	0,335
740A5004	740A Galv 3/4"	20	Nut	Rp 3/4	G 1 1/4	-	85	46	27	48	98	60	30	-	0,509
740A5005	740A Galv 1"	25	Nut	Rp 1	G 1 1/2	-	85	51	28	55	99	60	30	-	0,585
740A5006	740A Galv 1 1/4"	32	Nut	Rp 1 1/4	G 2	-	100	60	28	67	114	65	30	-	0,854
740A5007	740A Galv 1 1/2"	40	Nut	Rp 1 1/2	G 2 1/4	-	100	70	32	75	115	65	35	-	1,080
740A5008	740A Galv 2"	50	Nut	Rp 2	G 2 3/4	-	115	84	32	90	130	75	35	-	1,525
740A5009	740A Galv 2 1/2"	65	Nut	Rp 2 1/2	G 3 1/4	-	83	89	34	102	99	52	32	-	1,455
740A500A	740A Galv 3"	80	Flange	Rp 3	-	164	130	118	16	121	150	80	40	4	3,770
740A500C	740A Galv 4"	100	Flange	Rp 4	-	184	130	144	18	-	152	80	45	6	5,360

# 746

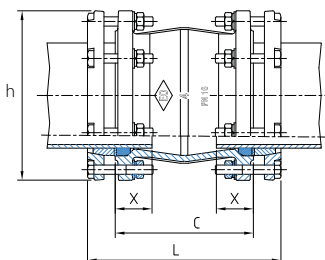
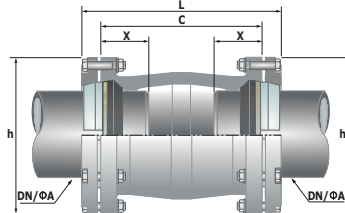
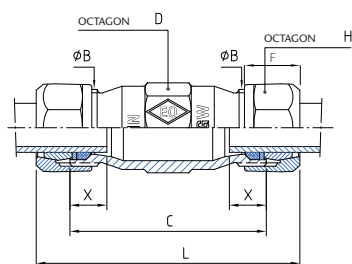
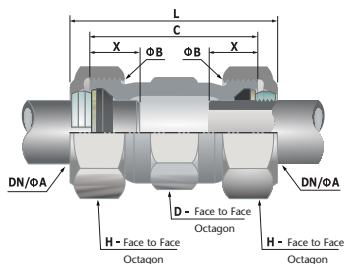
## JOINT MALE



CODE	Description	DN	Tightening	Φ (A)	Φ (B)	h	C	D	F	H	L approx.	X max	X min	Nr. Screws	Kg (approx)
mm															
746A5002	746A Galv 3/8"	10	Nut	Rp 3/8	G 7/8	-	60	27	24	36	73	35	30	-	0,195
746A5003	746A Galv 1/2"	15	Nut	Rp 1/2	G 1	-	85	36	24	38	96	60	26	-	0,318
746A5004	746A Galv 3/4"	20	Nut	Rp 3/4	G 1 1/4	-	85	46	27	48	98	60	30	-	0,481
746A5005	746A Galv 1"	25	Nut	Rp 1	G 1 1/2	-	85	51	28	55	91	55	30	-	0,578
746A5006	746A Galv 1 1/4"	32	Nut	Rp 1 1/4	G 2	-	100	60	28	67	114	65	30	-	0,840
746A5007	746A Galv 1 1/2"	40	Nut	Rp 1 1/2	G 2 1/4	-	100	70	32	75	115	65	35	-	1,062
746A5008	746A Galv 2"	50	Nut	Rp 2	G 2 3/4	-	115	84	32	90	143	75	35	-	1,540
746A5009	746A Galv 2 1/2"	65	Nut	Rp 2 1/2	G 3 1/4	-	90	89	34	102	105	50	32	-	1,453
746A500A	746A Galv 3"	80	Flange	Rp 3	-	164	150	118	16	121	171	90	45	4	3,944
746A500C	746A Galv 4"	100	Flange	Rp 4	-	184	150	144	18	-	173	90	45	6	5,505

## 770

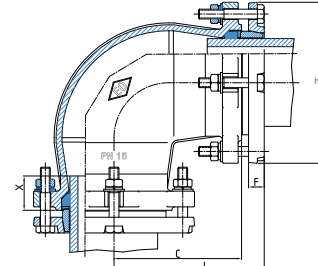
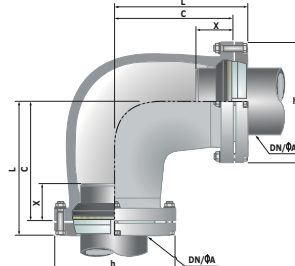
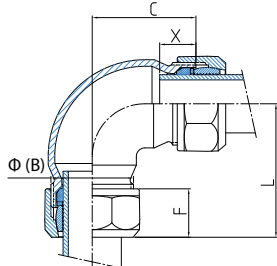
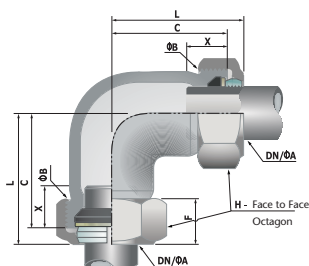
### DOUBLE JOINT



CODE	Description	DN	Tightening	Φ A	Φ B	h	C	D	F	H	L approx.	X max	X min	Nr. Screws	Kg (approx)
mm															
770A5003	770A Galv 1/2"	15	Nut	1/2	G 1	-	85	36	24	38	106	40	26	-	0,416
770A5004	770A Galv 3/4"	20	Nut	3/4	G 1 1/4	-	85	46	27	48	111	40	26	-	0,654
770A5005	770A Galv 1"	25	Nut	1	G 1 1/2	-	85	51	28	55	117	40	26	-	0,810
770A5006	770A Galv 1 1/4"	32	Nut	1 1/4	G 2	-	100	60	28	67	124	45	30	-	1,133
770A5007	770A Galv 1 1/2"	40	Nut	1 1/2	G 2 1/4	-	100	70	32	75	129	45	32	-	1,477
770A5008	770A Galv 2"	50	Nut	2	G 2 3/4	-	115	84	32	90	143	55	35	-	2,135
770A5009	770A Galv 2 1/2"	65	Nut	2 1/2	G 3 1/4	-	90	89	34	102	123	40	26	-	2,000
770A500A	770A Galv 3"	80	Flange	3	-	164	150	-	16	121	190	65	45	4+4	5,587
770A500C	770A Galv 4"	100	Flange	4	-	184	150	-	18	-	194	65	45	6+6	7,810

## 790

### DOUBLE ELBOW 90°



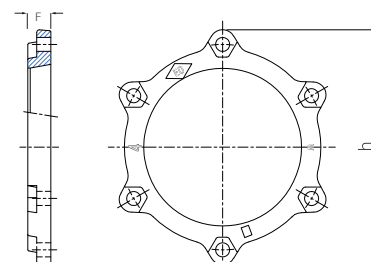
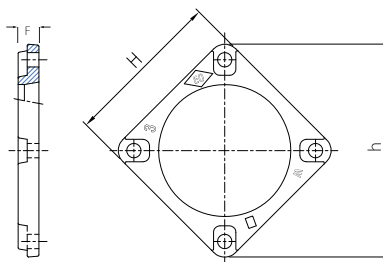
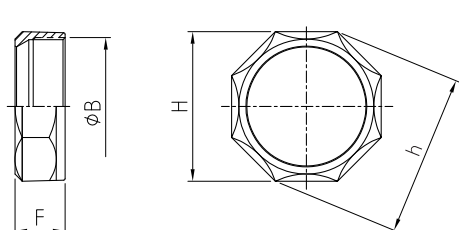
CODE	Description	DN	Tightening	Φ A	Φ B	h	C	F	H	L approx.	X max	X min	Kg (approx)
mm													
790A5003	790A Galv 1/2"	15	Nut	1/2	G 1	-	50	24	38	60	35	27	0,410
790A5004	790A Galv 3/4"	20	Nut	3/4	G 1 1/4	-	55	27	48	65	42	30	0,680
790A5005	790A Galv 1"	25	Nut	1	G 1 1/2	-	60	28	55	68	43	32	0,844
790A5006	790A Galv 1 1/4"	32	Nut	1 1/4	G 2	-	65	28	67	72	43	32	1,191
790A5007	790A Galv 1 1/2"	40	Nut	1 1/2	G 2 1/4	-	75	32	75	82	52	40	1,683
790A5008	790A Galv 2"	50	Nut	2	G 2 3/4	-	85	32	90	90	63	48	2,400
790A5009	790A Galv 2 1/2"	65	Flange	2 1/2	-	149	125	16	112	161	100	75	5,880
790A500A	790A Galv 3"	80	Flange	3	-	164	130	16	121	151	100	75	7,008

## 730 / 730R / 740 / 746 / 770 / 790

TIGHTENING NUT ( 3/8" to 2 1/2" )

TIGHTENING FLANGES ( 2 1/2" and 3" )

TIGHTENING FLANGES 4"

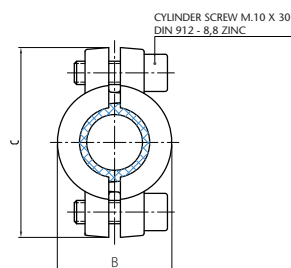
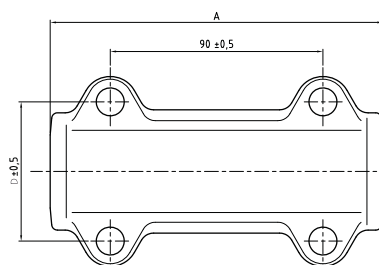
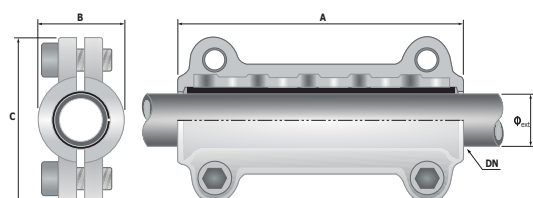


Tightening	pulg	DN	Φ B	F	H Face to face	h diagonal	Nr. Screws	
				mm				
Nut	3/8	10	G 7/8	24	36	38	-	
Nut	1/2	15	G 1	24	38	38	-	
Nut	3/4	20	G 1 1/4	27	48	48	-	
Nut	1	25	G 1 1/2	28	55	55	-	
Nut	1 1/4	32	G 2	28	67	67	-	
Nut	1 1/2	40	G 2 1/4	32	75	75	-	
Nut	2	50	G 2 3/4	32	90	90	-	
Nut	2 1/2	65	G 3 1/4	34	102	111	-	
Flange	2 1/2	65	-	16	112	149	4	
Flange	3	80	-	16	121	164	4	
Flange	4	100	-	18	-	184	6	



### 710

LONG REPARATION CLAMP

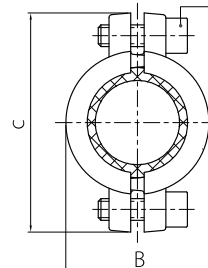
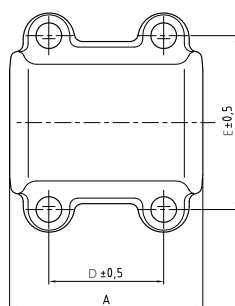
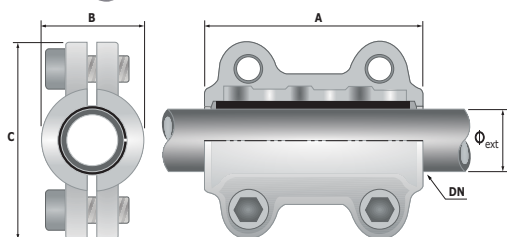


CODE	Description	Messure			A	B	C	D	Nr. Screws	Kg (approx)	
		inchees	DN	Φext (Steel tube)							
71005003	710 Galv 1/2"	1/2	15	21,0	140	42	75	53	4	1,003	
71005004	710 Galv 3/4"	3/4	20	26,9	140	48	81	59	4	1,092	
71005005	710 Galv 1"	1	25	33,7	140	54	88	66	4	1,233	
71005006	710 Galv 1 1/4"	1 1/4	32	42,4	140	65	102	80	4	1,411	
71005007	710 Galv 1 1/2"	1 1/2	40	48,3	140	72	108	87	4	1,540	
71005008	710 Galv 2"	2	50	60,3	140	87	122	98	4	1,788	
71005009	710 Galv 2 1/2"	2 1/2	65	76,1	140	105	138	116	4	2,112	
7100500A	710 Galv 3"	3	80	88,9	160	117	152	128	4	2,792	
7100500C	710 Galv 4"	4	100	114,3	160	144	176	154	4	3,284	



# 715

## SHORT REPARATION CLAMP



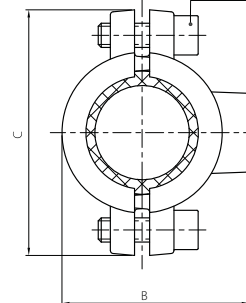
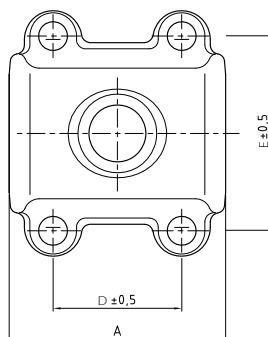
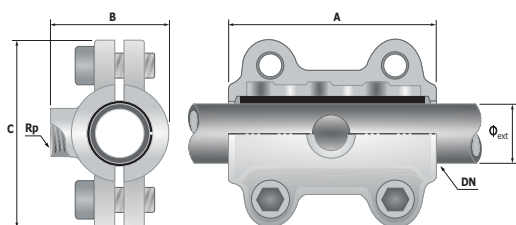
CYLINDER SCREW M.10 X 30  
DIN 912 - 8,8 ZINC

CODE	Description	messure			A	B	C	D	E	Nr. Screws	Kg (approx)	
		inchees	DN	Φext (Steel tube)	mm							
71505003	715 Galv 1/2"	1/2	15	21,0	70	39	67	42	50	4	0,408	
71505004	715 Galv 3/4"	3/4	20	26,9	70	44	73	42	57	4	0,437	
71505005	715 Galv 1"	1	25	33,7	70	51	80	42	63	4	0,500	
71505006	715 Galv 1 1/4"	1 1/4	32	42,4	80	62	94	42	77	4	0,640	
71505007	715 Galv 1 1/2"	1 1/2	40	48,3	100	68	99	73	82	4	0,871	
71505008	715 Galv 2"	2	50	60,3	100	83	112	73	96	4	1,060	



# 720

## INTAKE CLAMP



CYLINDER SCREW M.10 X 30  
DIN 912 - 8,8 ZINC

CODE	Description	messure			Cylindrical thread EN 10226-1 (ISO 7-1)	A	B	C	D	E	Nr. Screws	Kg (approx)
		inchees	DN	Φext (Steel tube)		mm						
72005033	720 Galv 1/2"-1/2"	1/2 - 1/2	15x15	21,0	Rp 1/2	70	47	67	42	50	4	0,423
72005043	720 Galv 3/4"-1/2"	3/4 - 1/2	20x15	26,9	Rp 1/2	70	53	73	42	57	4	0,444
72005053	720 Galv 1"-1/2"	1 - 1/2	25x15	33,7	Rp 1/2	70	59	80	42	63	4	0,500
72005064	720 Galv 1 1/4"-3/4"	1 1/4 - 3/4	32x20	42,4	Rp 3/4	80	73	94	42	77	4	0,705
72005074	720 Galv 1 1/2"-3/4"	1 1/2 - 3/4	40x20	48,3	Rp 3/4	100	79	99	73	82	4	0,984
72005085	720 Galv 2"-1"	2 - 1	50x25	60,3	Rp 1	100	95	112	73	96	4	1,1675

### 4.1. FAST FITTINGS

Once the piece has been received from the factory, it should be disassembled.

The following steps should be followed in order to carry out a correct installation:

1. Place the steel pipe in the machine so that the contact and support area is as big as possible.
2. Cut the steel pipes perpendicularly to the axis.
3. Remove any traces of burr in the interior and exterior of the pipe so that the end of pipe is perfectly flat, make sure that the area of the pipes in which the joint is going to be made is totally free of grease, dirt, sand, etc.
4. Carry out the marking of the length of the insertion (X) according to that indicated in the dimension tables. The value given in the diagram is that corresponding to the final assembly.
5. Insert the internal elements and the nut in the pipe in the appropriate order:

- 1º compression nut (compression flange).
- 2º locking ring.
- 3º metallic washer.
- 4º elastomere sealing joint.
- 5º body.

Note 1: in order to guarantee correct assembly, it is very important that the compression tapered locking ring is correctly located (cone to cone) in the tightening nut (flange) and both are well centred on the axis of the pipe.

6. Once the body is secured with the help of an auxiliary tool, the end of the steel pipe is inserted in the interior of the body to length (X) which has been previously marked.
7. Subsequently, the tightening (screwing) of the nut (flange) is carried out until the pipe is sufficiently secured.

Note 2: the screwing should be carried out alternatively with each of the screws and not consecutively.

8. To end the assembly, it is necessary to tighten (screw) up to the limit using a suitable tool.

Note 3: bear in mind that the internal assembly elements can only be used once. When having to be substituted by other new components, the assembly should be carried out as if for the first time.

Note 4: the internal assembly components of other manufacturers can not be used in the JR EO joints.

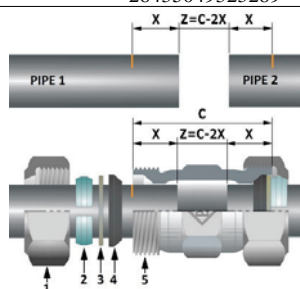
**FIG. 740A G 1"**

740A5005

NG-4502BN0540



28435049323289



#### ASSEMBLING ORDER

- 1st.- Tuerca / Nut / Ü-Mutter
- 2nd.- Anillo acero/Steel ring/Klemmring
- 3rd.- Arandela / Washer / Vorlegring
- 4th.- Goma / Rubber / Gummidichtring
- 5th.- Pieza/Piece/Verschraubungskörper

#### SPECIFICATIONS

Gas Temp. (°C) : -20 to 70°C

Gas Pressure : PN 1

Pipes : DIN 2440-41-42-48-58

X<sub>min</sub> (mm) : 1/2"(16); 3/4"(19); 1"(21); 1 1/4"(22); 1 1/2" and 2"(24); 2 1/2" and 3"(35); 4"(40)

Die genannten Glattrohrverbinder sind nicht für Gasinnenleitungen (HTB) geeignet

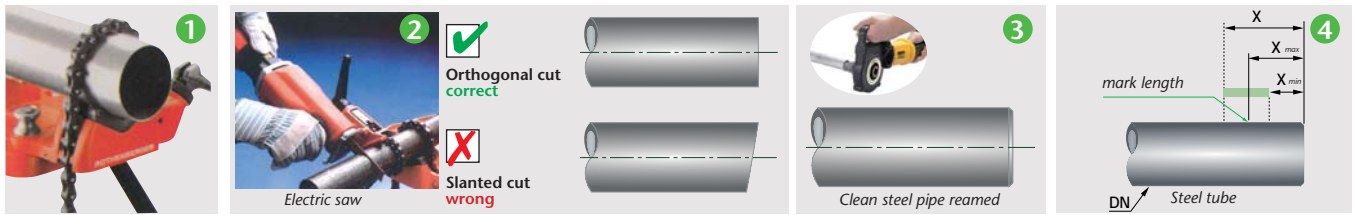
#### MINIMUM TIGHTENING TORQUE (Nm)

- 3/8", 1/2" = 65
- 3/4", 1" = 125
- 1 1/4", 1 1/2" = 185
- 2", 2 1/2", 3" = 245
- 4" = 300

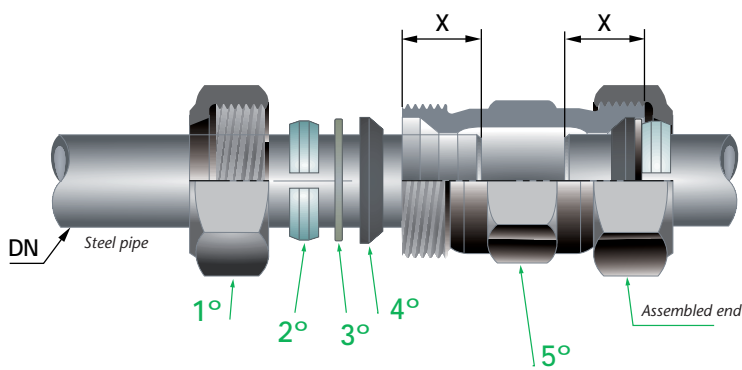
Example of assembly instructions included



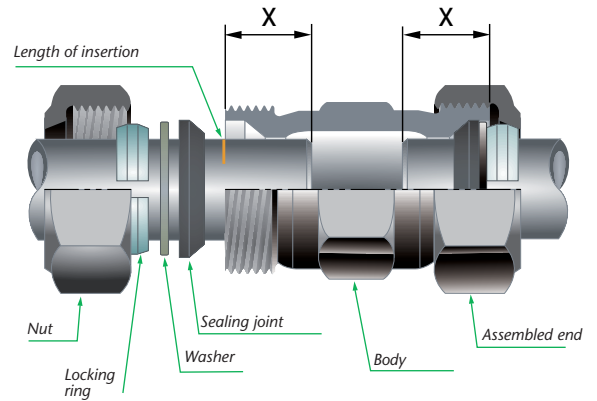
## GRAPHIC DETAIL OF THE SPECIFIED STEPS



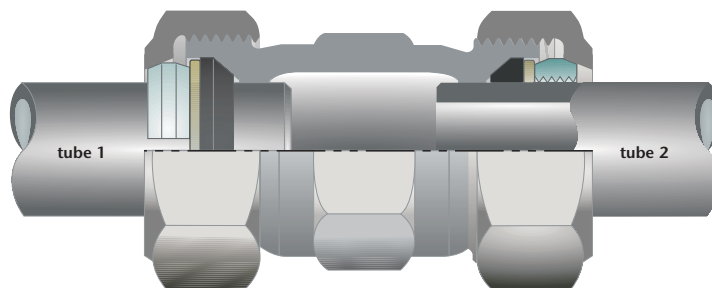
### 5 Insertion of components



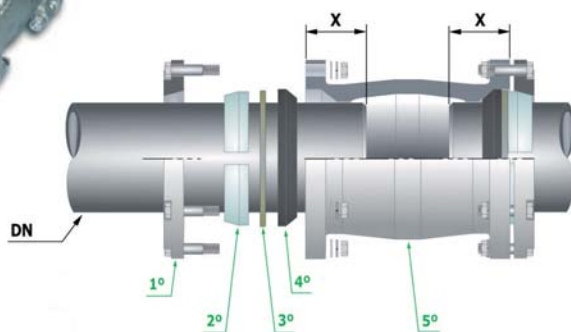
### 6 and 7 Length of insertion and hand tightening



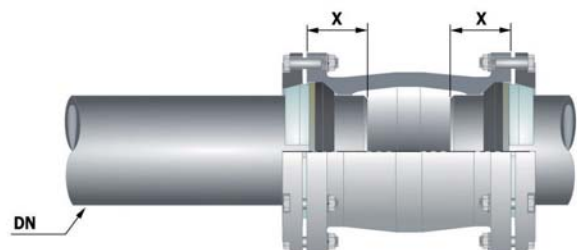
### 8 After tool tightening



### For flanged pieces



Insertion of components and hand tightening



After tool tightening

## 4.2. INTAKE AND REPARATION CLAMPS

Once the piece has been received from the manufacturer, it should be disassembled.

The following steps should be followed in order to carry out a correct installation:

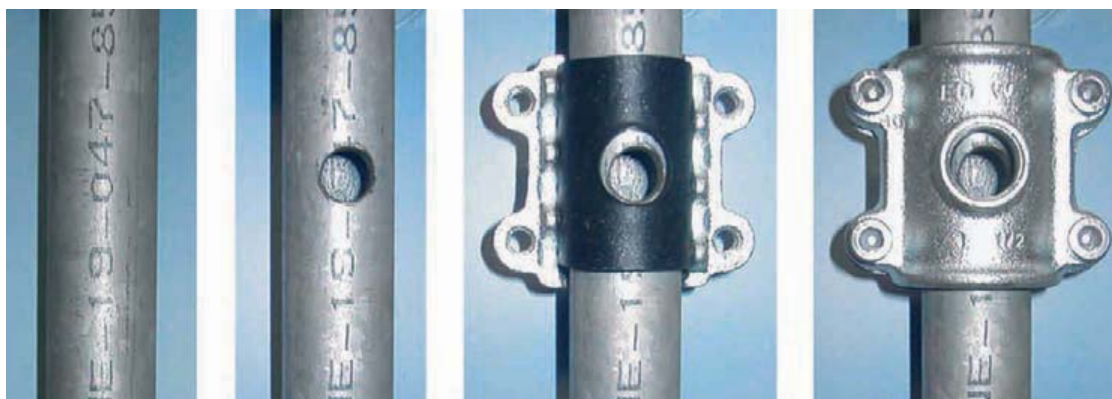
1. Make sure that the part to be repaired or branched is not rough and does not have significant deformations which may prevent the correct adjustment of the rubber seal.
2. For intake clamps, carry out the drilling (hole) in the steel pipe and remove any burr, oil, etc.
3. Clean the part to be repaired or branched of dirt and grease.
4. In the case of intake clamps, the hole of the pipe must coincide with the hole of the joint, thus avoiding the constriction of the passing of the fluid. In the case of reparation clamps, the rubber seal should fit perfectly in the seat of the bodies with its opening positioned opposite the leak.
5. By hand, secure the bodies on the joint, starting with the one which will be screwed into.
6. Next, the screwing is carried out manually until the pipe is sufficiently secured.
7. Finally, using an appropriate tool, all the screwing is carefully performed to the limit.

Note 1: bear in mind that the rubber seal can only be used once. When having to be substituted by another new component, the assembly should be carried out as if for the first time.

Note 2: the internal assembly components of other manufacturers can not be used with the EO Intake and Reparation Clamps.

### GRAPHIC DETAIL OF THE SPECIFIED STEPS

**Intake clamps**

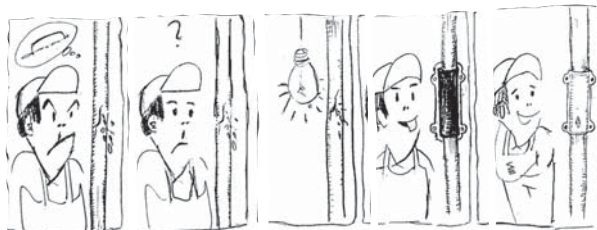


**Repair clamps**

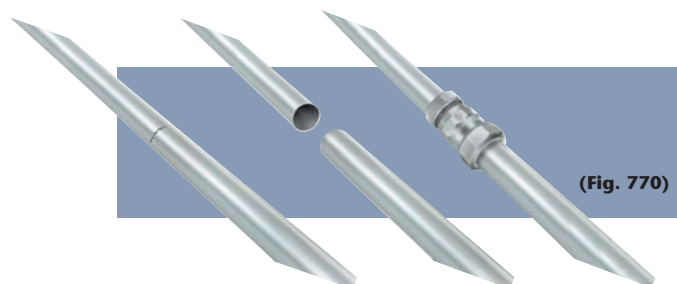


## REPAIR OF EXISTING INSTALLATIONS

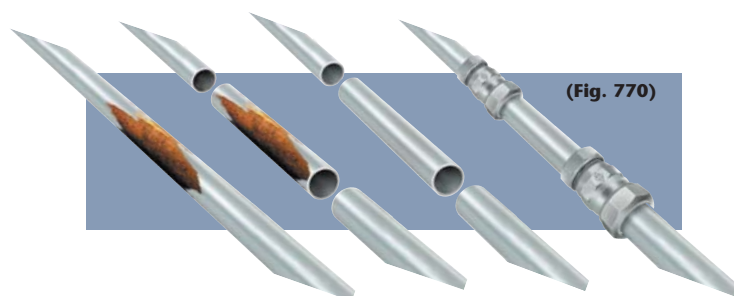
- Presence of pore or small longitudinal fissure. Reparation using reparation clamp.



- Presence of a significant fissure . Reparation using JR EO Ref. 770.

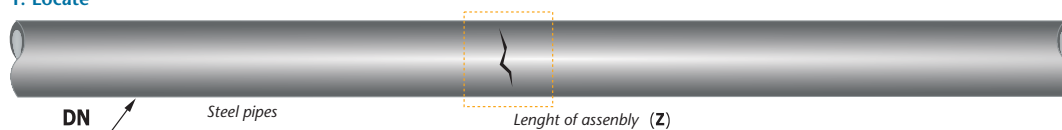


- Presence of corrosion source. Reparation using JR EO. Ref 770.



In each case, the length of the insertion (x) of the pipes in the body of the piece must be taken into account.

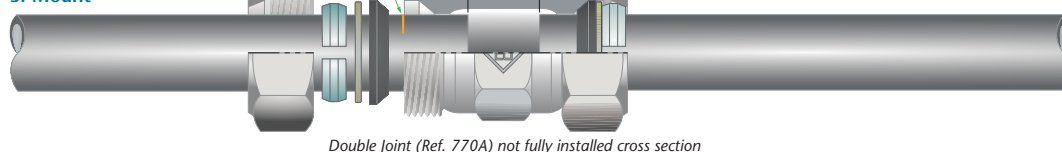
## 1. Locate



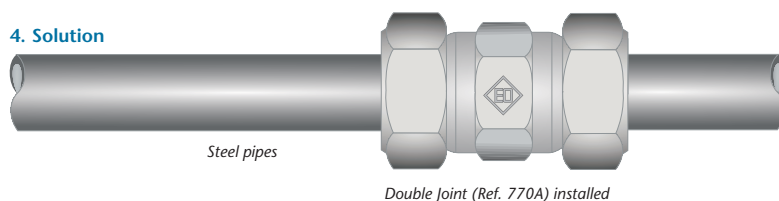
## 2. Section



## 3. Mount



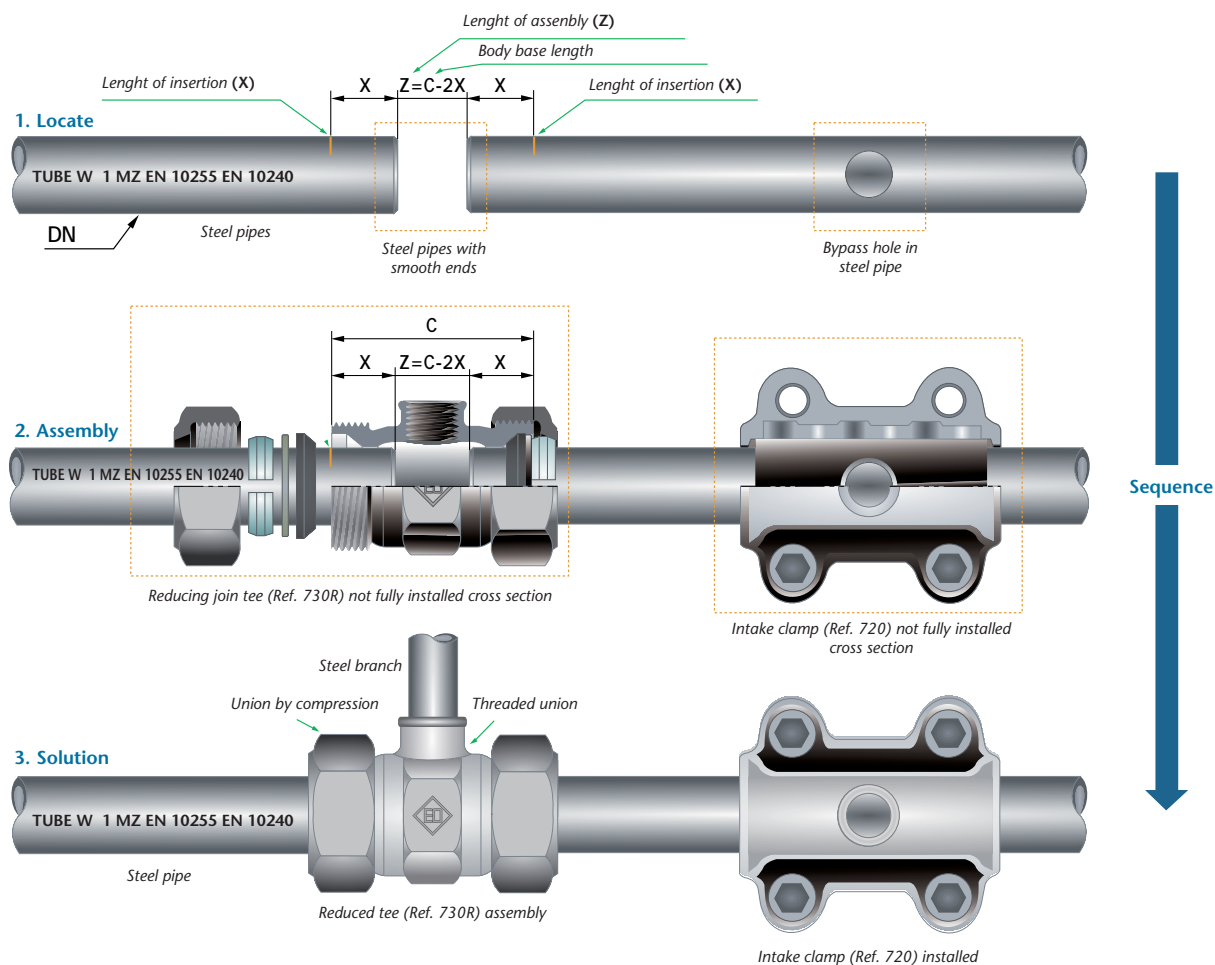
## 4. Solution



Sequence

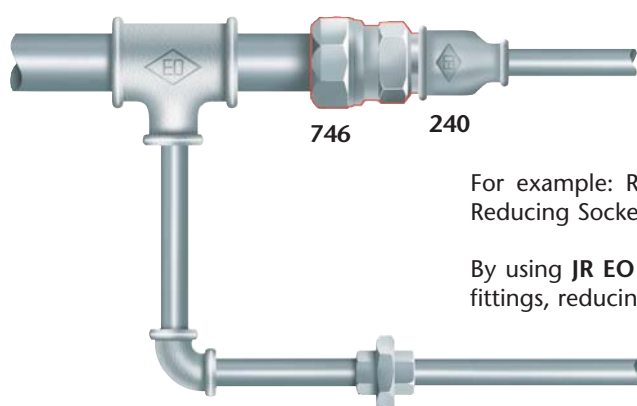
## ASSEMBLY OF DERIVATIONS

- Using a JR EO reduced Tee (730R) and an Intake Clamp (720).



## PRACTICAL AND SIMPLE CONNECTION TO ALREADY EXISTING INSTALLATIONS.

Example: reduction of piping through JR EO ref 746 male and Reducing Socket (ref 240).



For example: Reduction of a pipe using a male JR (fig 746) and a Reducing Socket (fig EO 240)

By using JR EO (fig 740) or male (746), and fast and simple threaded fittings, reducing the pipes is made possible.

## MODIFYING EXISTING INSTALLATIONS

Example: the adding on of elements which were not originally planned.

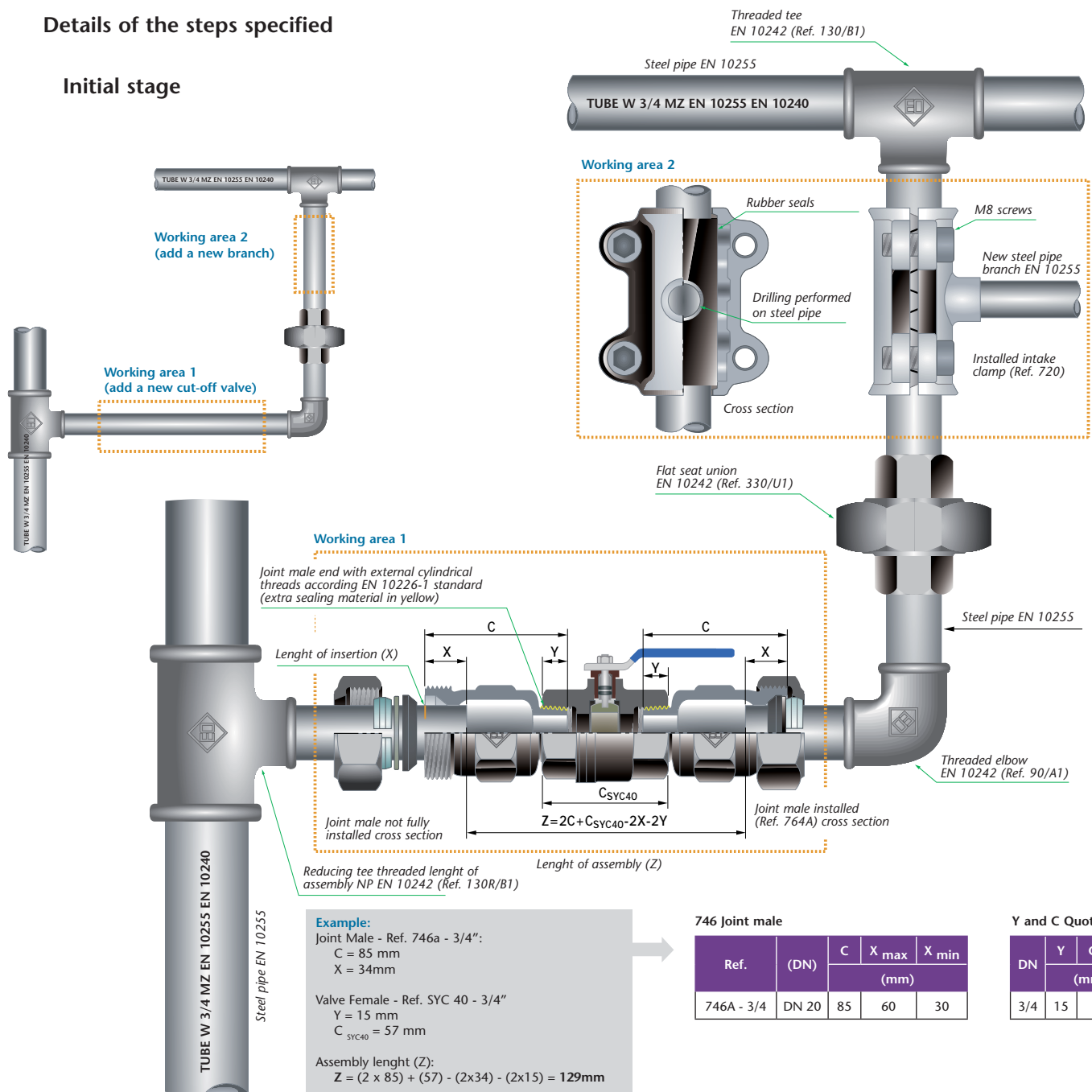
- Adding a female/female valve (SYC40 type) using JR EO Ref 746.
- Adding a branch to the installation using an intake clamp (720)

Elements to be incorporated:



### Details of the steps specified

#### Initial stage





## INCORRECT APPLICATIONS

Typical examples of incorrect applications are the following:

- Vertical conduction installations, constantly subjected to tensile strength and/or high vibrations. E.g. submerged pumping connections.
- Installation of **JR EO** at the ends of conduction lines used as plugs for branches or as cut-off valves ( in such cases, permanent maintenance of the installation will be necessary ).



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