TECHNICAL MANUAL

Arpol® FIX

Arpol FIX PRO

Pull out resistant pipe connections for metal pipes

Ø

48.3-609.6 MM

Because connecting matters

arpol.com

Discover the details
of Arpol FIX PRO couplings

Table of contents

03–04 **About Arpol**

05 Company overview

06–37 **Arpol FIX PRO | Ø48.3 – 609.6 mm**

06 Arpol FIX PRO | Ø48.3 – 609.6 mm
08 Product overview
09 Product benefits
11 Use cases
12 Use description
15 Anchoring explanation
16 Pipe materials suitable for FIX PRO application
17 Piping network
19 Technical information
26 Pressure detail explanation
28 Pipe gap between pipe ends
29 Influence of pipe thickness
30 Performance tests
32 Hydrostatic pressure and axial force
33 Hydrostatic pressure
36 Fitting instructions

37 **Remarks**

About Arpol

Because connecting matters

Specializing in the design and manufacture of flexible joints for pipe repair and connection, we continuously innovate, setting the highest standards of quality for our products. From our headquarters in Premià de Dalt, Barcelona, we oversee a range of patented solutions that enhance the efficiency and reliability of piping systems across diverse sectors.

Every project presents its unique challenges, but Arpol is always ready to assist. Inspired by our mission to build a better tomorrow, we move forward every day, turning complications into opportunities for progress and positive change.

Company overview

Arpol Couplings specializes in the design and manufacturing of **flexible couplings suitable for a wide range of pipes** and industrial applications. With a focus on **innovation and quality**, Arpol offers solutions that simplify the repair and connection of pipes, enhancing the efficiency and reliability of piping systems across various sectors. Based in Premià de Dalt, Barcelona, Spain, Arpol is committed to delivering products that meet **the highest standards of performance and durability**.
For more information, visit arpol.com.

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48.3-609.6 MM

Arpol FIX PRO


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48.3-609.6 MM

Product overview

The FIX PRO by Arpol Couplings represents a revolutionary approach in the field of pipe connections, **combining flexibility with strength** to ensure secure and efficient installations. Designed with cutting-edge technology, FIX PRO couplings are **engineered to facilitate the rapid, reliable, joining of pipes**, offering an axial restraint solution that is both cost-effective and durable.

These couplings are ideal for a variety of applications, including:

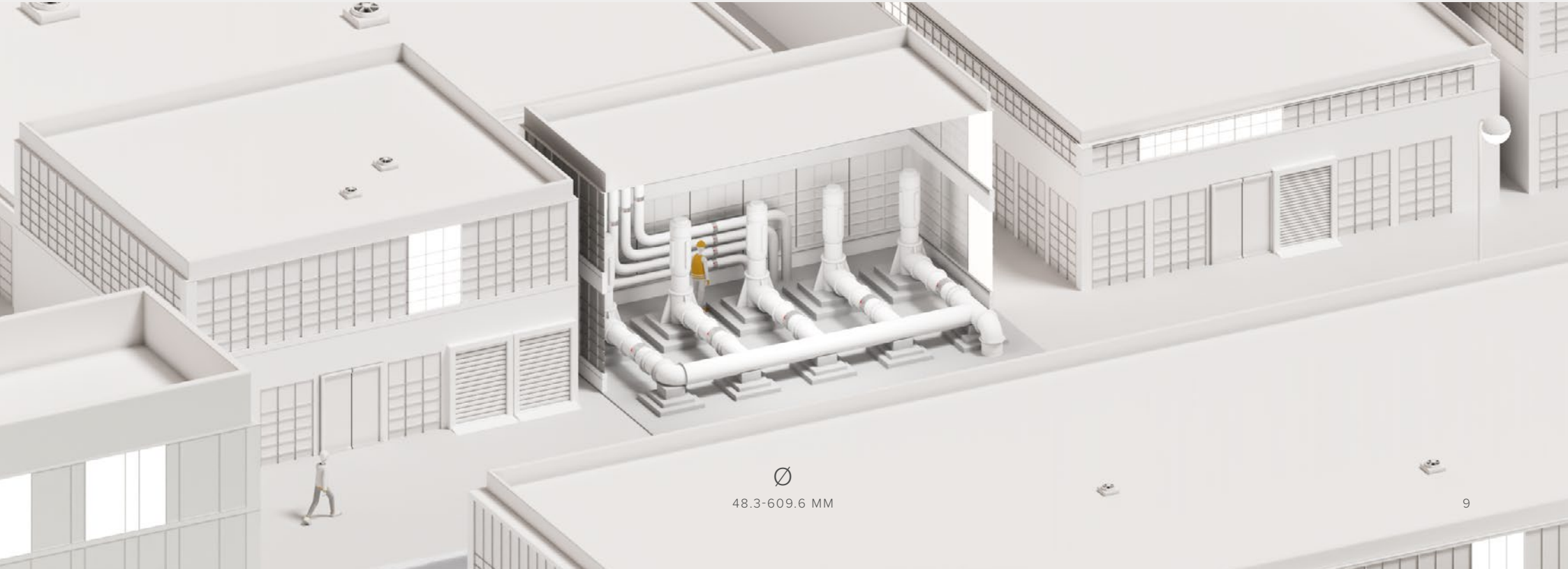
- **industrial,**
- **water management,**
- **and infrastructure projects,**

highlighting Arpol's commitment to innovation and quality in meeting the needs of modern piping systems.

Product benefits

Discover the advantages of FIX PRO for your piping needs:

- **Efficiency:** Streamlines installation with a time-saving design.
- **Cost-Effective:** Reduces expenses by minimizing labor and material costs.
- **Versatile:** Suitable for repairs and installations, replacing the need for welding.
- **Durable:** Engineered for pull-out resistance and long-term reliability.



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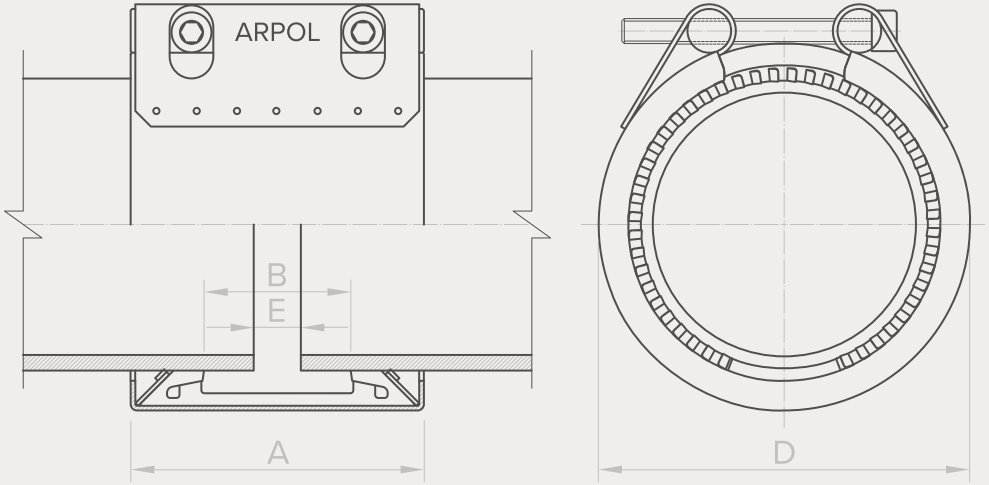
48.3-609.6 MM

Arpol FIX PRO

Ø48.3 – 609.6 mm



Use cases

The FIX PRO couling is designed for versatility across various scenarios involving metal pipes, including:

- Quick and secure connections for new pipe installations.
- Fast and reliable repairs on existing piping systems.

Special Features:

- The smart choice for stainless steel connections
- Pull-out resistant thanks to its design
- Safe and robust repairs without welding
- Alternate welded pipe sections with couplings for greater ease of installation.
- Offers an alternative to flanged connections.

Designed for industry, FIX PRO’s enhanced axial restraint function offers **security, quality, and cost-effectiveness.**

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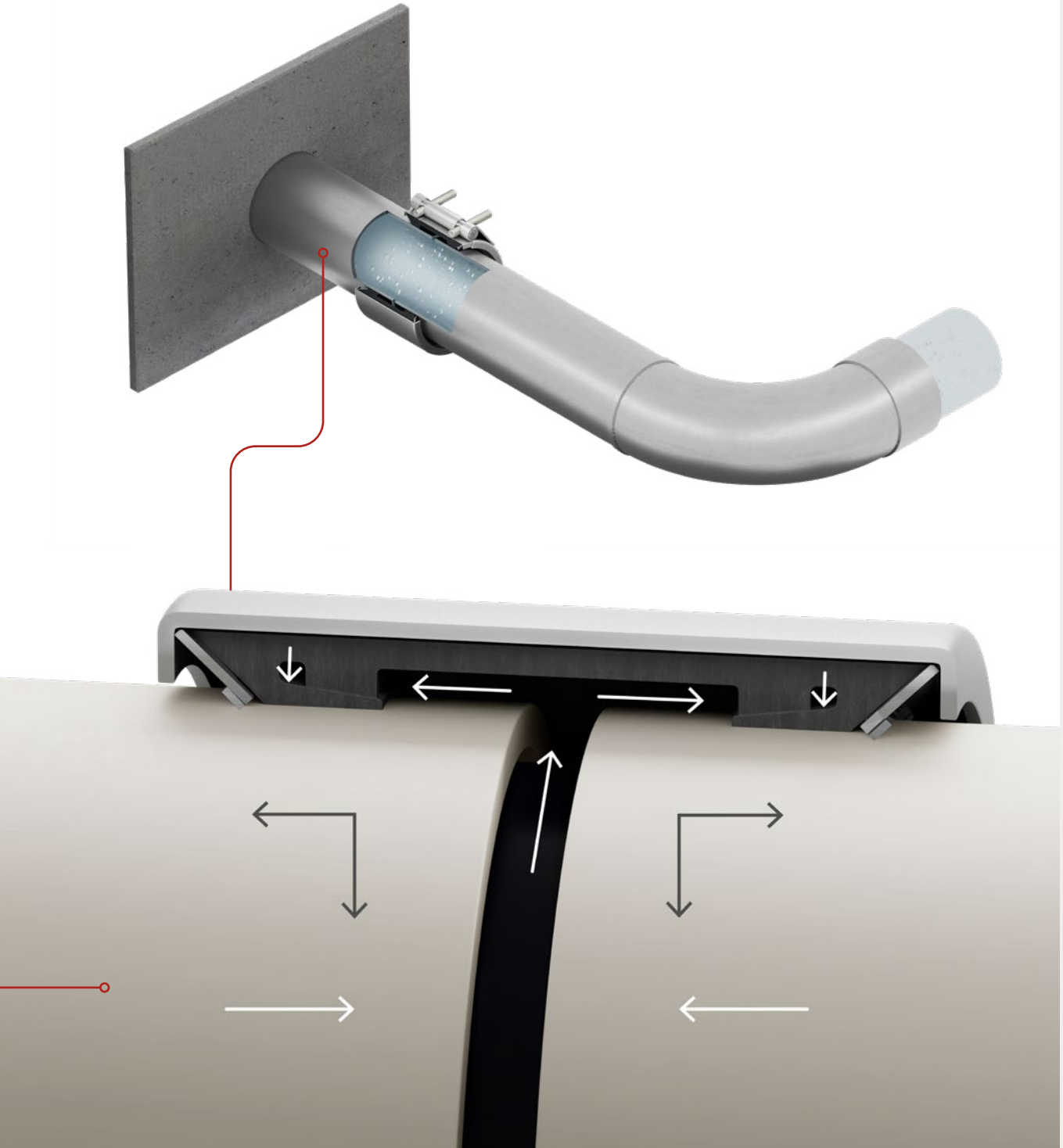
48.3-609.6 MM

Use description

The Arpol FIX PRO coupling is crafted to manage the complexities of fluid dynamics in pipelines. Its design accounts for the **‘thrust force’*** that occurs at bends and turns, where the speed of the fluid changes, creating pressure differentials. Such dynamic conditions offer the perfect scenario for the FIX PRO solution. It’s the ideal solution for maintaining pipeline integrity, particularly in areas subjected to variable flow rates and directions, ensuring a durable and reliable system.



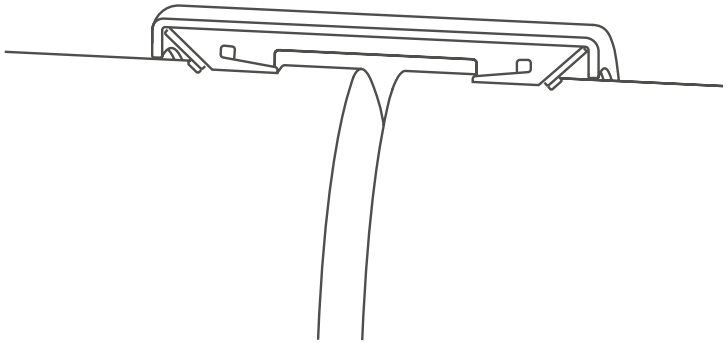
The Arpol FIX PRO coupling facilitates the connection of pipes, offering not only effective sealing on irregular surfaces and accommodating radial deformation and angular deflections, but also the ability to restrain axial movements between pipes, thanks to its innovative anchor ring design.

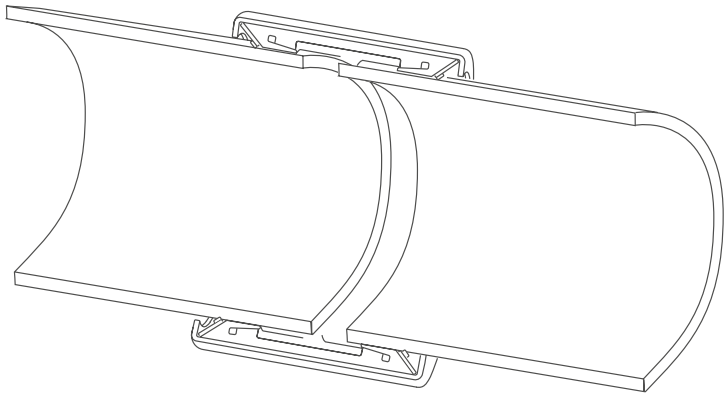
*

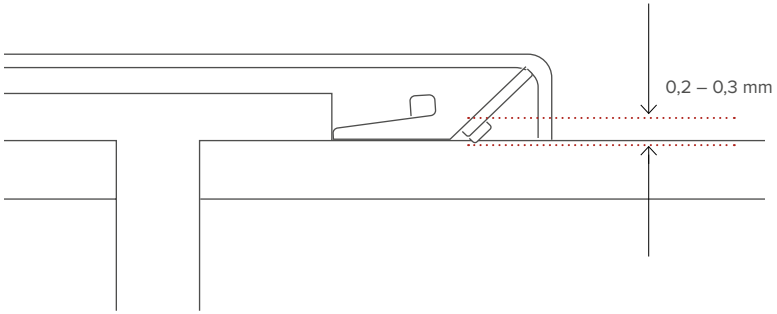
In fluid dynamics, the phenomenon arises when a fluid traverses a pipeline and encounters a curvature, such as in a bend. The outer side of the curve experiences a higher velocity compared to the inner side, necessitated by the need to cover a greater distance within a fixed time interval. This velocity gradient induces a pressure differential, resulting in the development of a resultant force opposing the directional change. This force, termed the ‘thrust force,’ is a well-recognized aspect of fluid flow dynamics, particularly notable in pipe elbows, pipeline terminations, and analogous geometrical configurations.

Use description

The ring design minimally penetrates the pipe wall, **ranging between 0.2-0.3mm**, making it suitable for use with thin stainless steel pipes



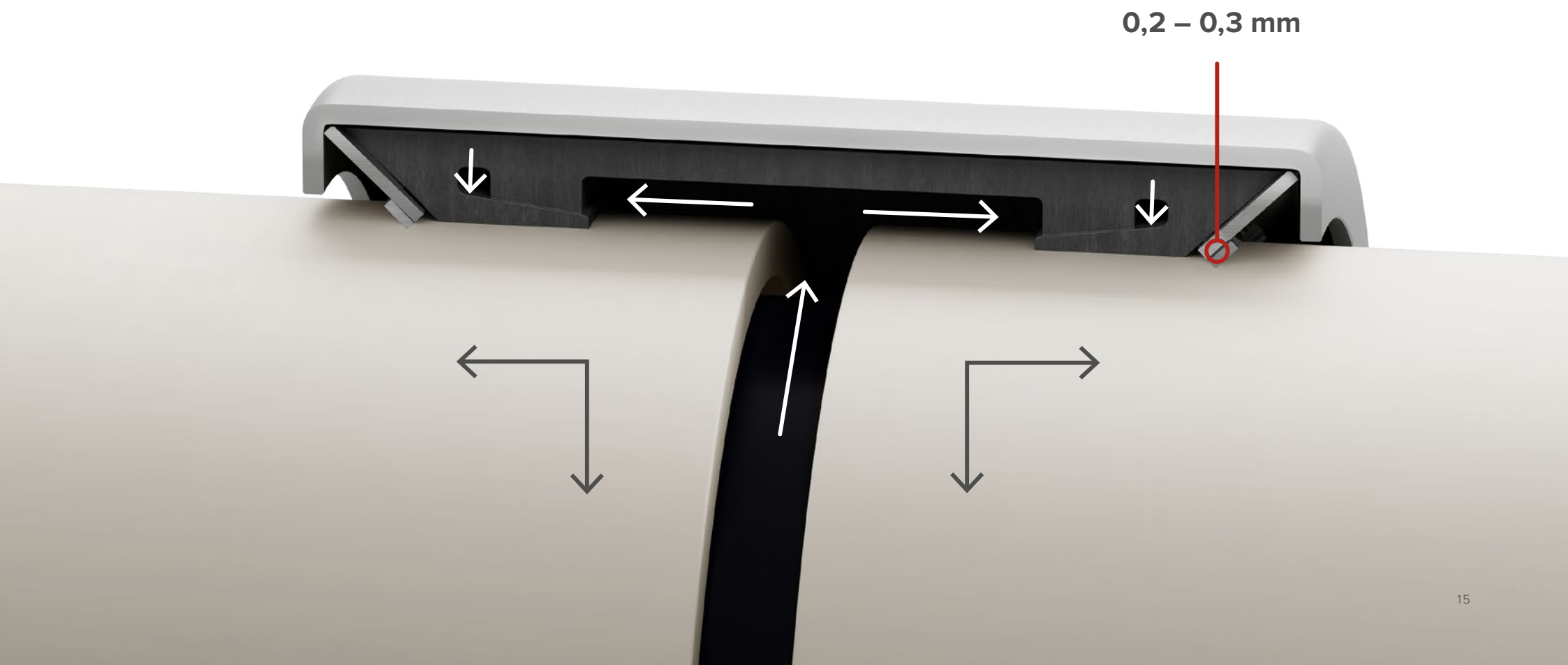




Anchoring explanation

The Arpol FIX PRO coupling provides a straightforward method for pipe installation. It is equipped with a unique anchoring ring with conically stamped teeth for a secure fit, suitable for various pipe materials including steel and cast iron.

The design aims to simplify installation by reducing the need for flanging, welding, grooving, or threading, ensuring a reliable connection even on difficult surfaces.



Pipe materials suitable for Arpol FIX PRO application

The effectiveness of the anchor ring in preventing axial movements between pipes relies heavily on the hardness of the pipe's outer surface. This hardness must strike a balance: it must permit proper engagement of the anchor ring while also possessing sufficient toughness to withstand the force exerted by the ring once it's engaged.

On the other hand, the material must be ductile enough to prevent the propagation of microcracks in the anchor zone that could lead to the collapse of the tube due to material fatigue.

The Arpol FIX PRO coupling anchoring system has been specifically designed to function with tubes made of stainless steel, carbon steel, and ductile iron pipe materials. An important feature is that if a coupling is suitable for stainless steel pipe, it automatically becomes suitable for pipes made of the other two materials with the same thickness.

Piping network

For buried pipelines, stabilization in straight runs and minor curves is commonly achieved through soil friction. At major changes in direction, thrust blocks are typically used to provide restraint.

Symbols

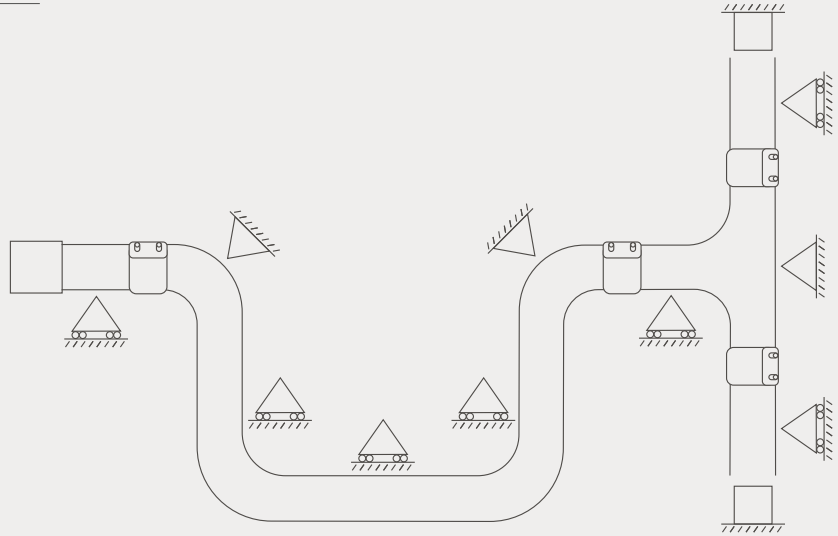
Sliding support

Fixed support

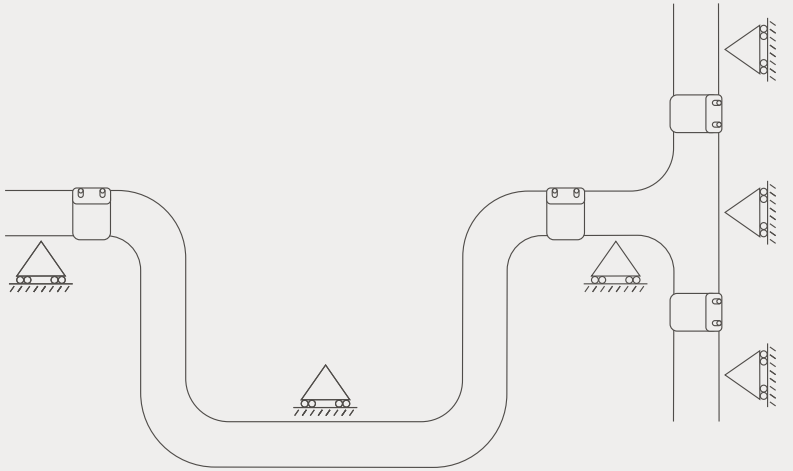
Anchor/thrust block

Coupling

INSTAL



FIX PRO



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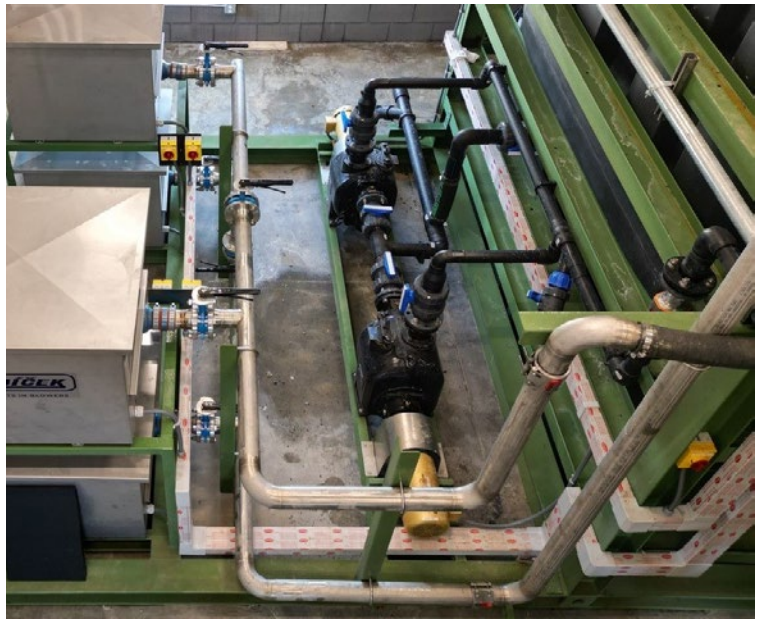
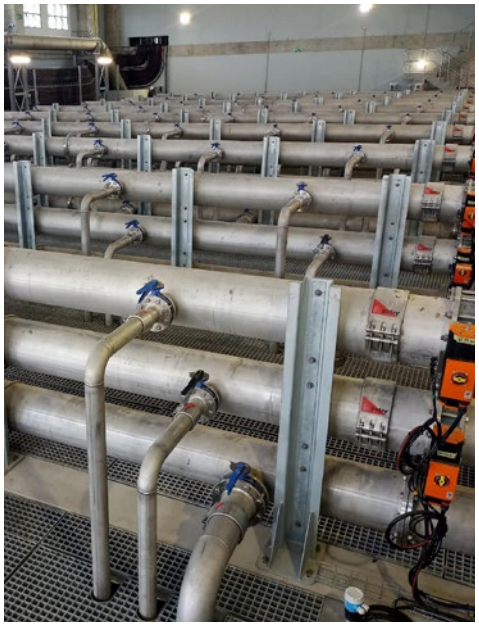




Technical information

Technical specification

PFA: Allowable operating pressures
Maximum hydrostatic pressure that the coupling is able to withstand in permanent service (working pressure)

PMA: Allowable maximum operating Pressure Maximum peak pressure that the coupling is able to withstand in service (pressure peaks)

PEA: Allowable site test pressure
Maximum hydrostatic site test pressure that the newly installed coupling can withstand for a relatively short duration, in order to ensure the integrity and tightness of the pipeline

Approvals
Approved for use with drinking water according to WRAS BS6920-1:2014, ACS XP P 41-250, NSF/ANSI 61 & 372

Designed and tested according to BS 8561:2021 and EN14525:2022 section 7.1 and 7.2 on stainless steel pipe

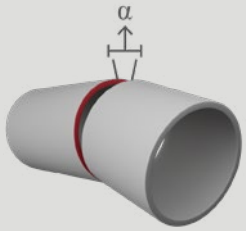
Leaktightness under positive internal pressure
1.5 x PFA + 5 bar for a period of 2h

Leaktightness under negative internal pressure
- 0,8bar for a period of 2h

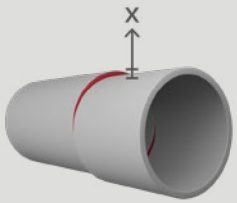
Strength and resitance to disortion
Resitance of fitting to damage when fasteners are overtightenend.

Symbols

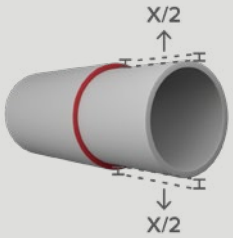
α Maximum angular deflection



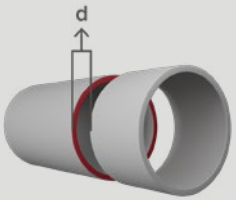
X Maximum misalignment



ΔØ Maximum diameter difference



E Maximum gap width



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Technical information

Materials & Important information

Casing
Stainless steel 1.4307 / 1.4404 (EN 10088-2), AISI 304L/ 316L (ASTM A 240)

Steel Plate
Stainless steel 1.4307 / 1.4404 (EN 10088-2), AISI 304L/ 316L (ASTM A 240)

Restraining ring
Stainless steel 1.4310 (EN 10151); AISI 301

Bars
Stainless steel 1.4307 / 1.4404 (EN 10088-2), AISI 304L / 316L (ASTM A 240)

Bolts
ISO 4762 / DIN 912. Stainless steel A2/A4 (EN-ISO 3506-01) with anti-galling zinc coating according to EN-ISO 2081 to prevent cold fusion

Sealing gasket
EPDM IRHD 70 according to EN 681-1/WA/WC
NBR IRHD 70 according to EN 682
Blue silicone IRHD 70 according to EN 681-1/WA/WC

Temperature rating
EPDM: -20 to 100°C
NBR: -20 to 80°C
Blue silicone: -55 to 200°C

For the use with stainless steel pipe, carbon steel pipe and ductile iron pipe.

NSF/ANSI/CAN 61 & 372

QUALITY		
	ASTM	EN
Casing	304L / 316L	1.4307/1.4404
Bars	304L / 316L	1.4307/ 1.4404
Bolts	304	1.4301/1.4401
Restraining ring	301	1.4310


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Technical information

***emin.:** Minimum wall thickness for stainless steel pipes
References displayed apply to: Coupling Quality: W5 (316L) / Sealing gasket: EPDM
Other configurations are possible: See “Material & Important Information” in page 20

Range	Reference FIX PRO	Pressures				Lock			Dimensions				Weight	Tolerances		
		*emin	PFA	PMA	PEA	Qty.	Bolt	Torque	A	B	D	E	kg	α	◯	ΔØ
mm		mm	bar	bar	bar	unit	mm	Nm	mm	mm	mm	mm		°	mm	mm
47,8-48,9	FIX PRO 48,3 A4E35	1,2	35	42	53	1	2×M8	15	78	31	68	5	0,605	4	1	0,5
53,5-54,5	FIX PRO 54 A4E30	1,6	30	36	45	1	2×M8	15	78	31	74	5	0,635	4	1	1
56,4-57,6	FIX PRO 57 A4E30	1,6	30	36	45	1	2×M8	15	78	31	77	5	0,658	4	1	1
59,7-60,9	FIX PRO 60.3 A4E30	1,6	30	36	45	1	2×M8	15	78	31	80	5	0,665	4	1	1
75,3-76,9	FIX PRO 76.1 A4E20	2,0	20	24	30	1	2×M8	15	94	45	96	5	0,88	4	1	1,5
83,1-84,9	FIX PRO 84 A4E20	2,0	20	24	30	1	2×M8	15	94	45	107	5	0,95	4	1	1,5
88-89,8	FIX PRO 88.9 A4E20	2,0	20	24	30	1	2×M8	15	94	45	112	5	1,155	4	1	1,5
97-99	FIX PRO 98 A4E19	2,0	19	23	29	1	2×M8	15	94	45	122	5	1,17	4	1	1,5
102,9-105,1	FIX PRO 104 A4E19	2,0	19	23	29	1	2×M8	15	94	45	127	5	1,245	4	1	1,5
106,9-109,1	FIX PRO 108 A4E19	2,0	19	23	29	1	2×M8	20	94	45	131	5	1,25	4	1	2,5
108,9-111,1	FIX PRO 110 A4E19	2,0	19	23	29	1	2×M8	20	94	45	133	5	1,25	4	1	2,5
113,2-115,4	FIX PRO 114.3 A4E23	2,0 3,0	20 23	24 28	30 35	1	2×M8	20	95	45	137	5	1,586	4	1	2,5
115-119	FIX PRO 118 A4E23	2,0 3,0	20 23	24 28	30 35	1	2×M8	20	95	45	141	5	1,610	4	1	2,5
127,6-130,2	FIX PRO 129 A4E20	2,0 3,0	18 20	22 24	26 30	1	2×M10	35	112	57	152	5	2,271	4	1	2,5
131,7-134,3	FIX PRO 133 A4E20	2,0 3,0	18 20	22 24	26 30	1	2×M10	35	112	57	156	5	2,31	4	1	2,5
133-137	FIX PRO 135 A4E20	2,0 3,0	18 20	22 24	26 30	1	2×M10	35	112	57	158	5	2,33	4	1	2,5
138,3-141,1	FIX PRO 139.7 A4E20	2,0 3,0	16 20	19 24	26 30	1	2×M10	35	112	57	163	5	2,371	4	1	2,5

Range	Reference FIX PRO	Pressures				Lock			Dimensions				Weight	Tolerances		
		*emin	PFA	PMA	PEA	Qty.	Bolt	Torque	A	B	D	E	kg	α	◯	ΔØ
mm		mm	bar	bar	bar	unit	mm	Nm	mm	mm	mm	mm		°	mm	mm
142,6-145,4	FIX PRO 144 A4E20	2,0 3,0	16 20	19 24	26 30	1	2×M10	35	113	57	167	5	2,41	4	1	2,5
152,4-155,6	FIX PRO 154 A4E20	2,0 3,0	16 20	19 24	26 30	1	2×M10	35	113	57	178	5	2,872	4	1	2,5
157,4-160,6	FIX PRO 159 A4E19	2,0 3,0	15 19	18 23	24 29	1	2×M10	35	113	57	183	5	2,929	2	2	2,5
166,6-170	FIX PRO 168.3 A4E19	2,0 3,0	14 19	17 23	24 29	1	2×M10	35	113	57	191	5	3,022	2	2	2,5
192-195,5	FIX PRO 193.7 A4E10	2,0	10	12	15	1	3×M12	45	141	86	225	5	4,511	2	2	2,5
192-195,5	FIX PRO 193.7 A4E18	3,0	18	22	27	1	3×M12	50	141	86	225	5	4,9	2	2	2,5
203-207	FIX PRO 206 A4E10	2,0	10	12	15	1	3×M12	45	141	86	238	15	4,645	2	2	2,5
203-207	FIX PRO 206 A4E18	3,0	18	22	27	1	3×M12	50	141	86	238	15	5,004	2	2	2,5
208-212	FIX PRO 210 A4E10	2,0	10	12	15	1	3×M12	45	141	86	242	15	4,716	2	2	2,5
208-212	FIX PRO 210 A4E18	3,0	18	22	27	1	3×M12	50	141	86	242	15	5,283	2	2	2,5
216,9-221,3	FIX PRO 219.1 A4E10	2,0	10	12	15	1	3×M12	45	141	86	251	15	4,827	2	2	2,5
216,9-221,3	FIX PRO 219.1 A4E18	3,0	18	22	27	1	3×M12	50	141	86	252	15	5,283	2	2	2,5
219,8-224,2	FIX PRO 222 A4E10	2,0	10	12	15	1	3×M12	45	141	86	251	15	4,897	2	2	2,5
219,8-224,2	FIX PRO 222 A4E18	3,0	18	22	27	1	3×M12	50	141	86	252	15	5,391	2	2	2,5
242-247	FIX PRO 244.5 A4E6	2,0	6	8	9	1	3×M12	45	141	86	276	15	5,672	2	2	2,5

Technical information

Range	Reference FIX PRO	Pressures				Lock			Dimensions				Weight	Tolerances		
		*emin	PFA	PMA	PEA	Qty.	Bolt	Torque	A	B	D	E	kg	α	⌀	ΔØ
mm		mm	bar	bar	bar	unit	mm	Nm	mm	mm	mm	mm		°	mm	mm
242-247	FIX PRO 244.5 A4E12	3,0	12	15	18	1	3×M12	65	141	86	277	15	6,31	2	2	2,5
252-257	FIX PRO 256 A4E6	2,0	6	8	9	1	3×M12	45	141	86	288	15	5,86	2	3	2,5
252-257	FIX PRO 256 A4E12	3,0	12	15	18	1	3×M12	65	142	86	289	15	6,47	2	3	2,5
264,5-269,5	FIX PRO 267 A4E6	2,0	6	8	9	1	3×M12	45	141	86	299	15	6,061	2	3	2,5
264,5-269,5	FIX PRO 267 A4E12	3,0	12	15	18	1	3×M12	65	142	86	300	15	6,67	2	3	2,5
270,5-275,5	FIX PRO 273 A4E6	2,0	6	8	9	1	3xM12	45	141	86	305	15	6,117	2	3	2,5
270,5-275,5	FIX PRO 273 A4E12	3,0	12	15	18	1	3×M12	65	142	86	306	15	7,071	2	3	2,5
301-307	FIX PRO 306 A4E6	2,0	4	5	6	1	3×M12	45	141	86	338	15	6,578	2	3	2,5
		3,0	6	8	9											
301-307	FIX PRO 306 A4E10	4,2	10	12	15	1	3×M12	65	141	86	340	15	7,498	2	3	2,5
320,5-327	FIX PRO 323.9 A4E6	2,0	3	4	5	1	3×M12	45	141	86	356	15	6,906	2	3	2,5
		3,0	6	8	9											
320,5-327	FIX PRO 323.9 A4E10	4,6	10	12	15	1	3×M12	65	144	86	358	15	9,526	2	3	2,5
323-330	FIX PRO 326 A4E6	3,0	6	8	9	1	3×M12	45	141	86	356	15	7,20	2	3	2,5
323-330	FIX PRO 326 A4E10	4,6	10	12	15	1	3×M12	65	144	86	358	15	9,669	2	3	2,5
352-359	FIX PRO 355.6 A4E4	3,0	4	5	6	1	3×M12	45	141	86	387	15	7,36	2	3	2,5
352-359	FIX PRO 355.6 A4E9	4,8	9	12	14	1	3×M12	65	144	86	389	15	10,6	2	3	2,5
402,5-410,5	FIX PRO 406.4 A4E3	3,0	3	4	5	1	3×M12	50	142	86	438	15	8,2	2	3	2,5
402,5-410,5	FIX PRO 406.4 A4E6	4,8	6	8	9	1	3×M16	80	144	86	440	15	11,6	2	3	2,5
424-432	FIX PRO 428 A4E4	4,8	4	5	6	1	3×M16	80	144	86	489	15	11,454	2	3	2,5
452,5-460,5	FIX PRO 457.2 A4E2	3,0	2	3	3	1	3×M12	60	142	86	489	15	11,024	2	3	2,5

Range	Reference FIX PRO	Pressures				Lock			Dimensions				Weight	Tolerances		
		*emin	PFA	PMA	PEA	Qty.	Bolt	Torque	A	B	D	E	kg	α	◯	ΔØ
mm		mm	bar	bar	bar	unit	mm	Nm	mm	mm	mm	mm		°	mm	mm
452,5-460,5	FIX PRO 457.2 A4E4	4,8	4	5	6	1	3×M16	80	144	86	489	15	12,086	2	3	2,5
503,5-511,5	FIX PRO 508 A4E2	5,5	2	3	3	1	3×M16	80	144	86	542	15	13,239	2	3	2,5
554,5-562,5	FIX PRO 558.8 A4E1	5,5	1	2	2	1	3×M16	100	144	86	592	15	14,284	2	3	2,5
605-613	FIX PRO 609.6 A4E1	6,4	1	2	2	1	3×M16	100	144	86	643	15	15,37	2	3	2,5

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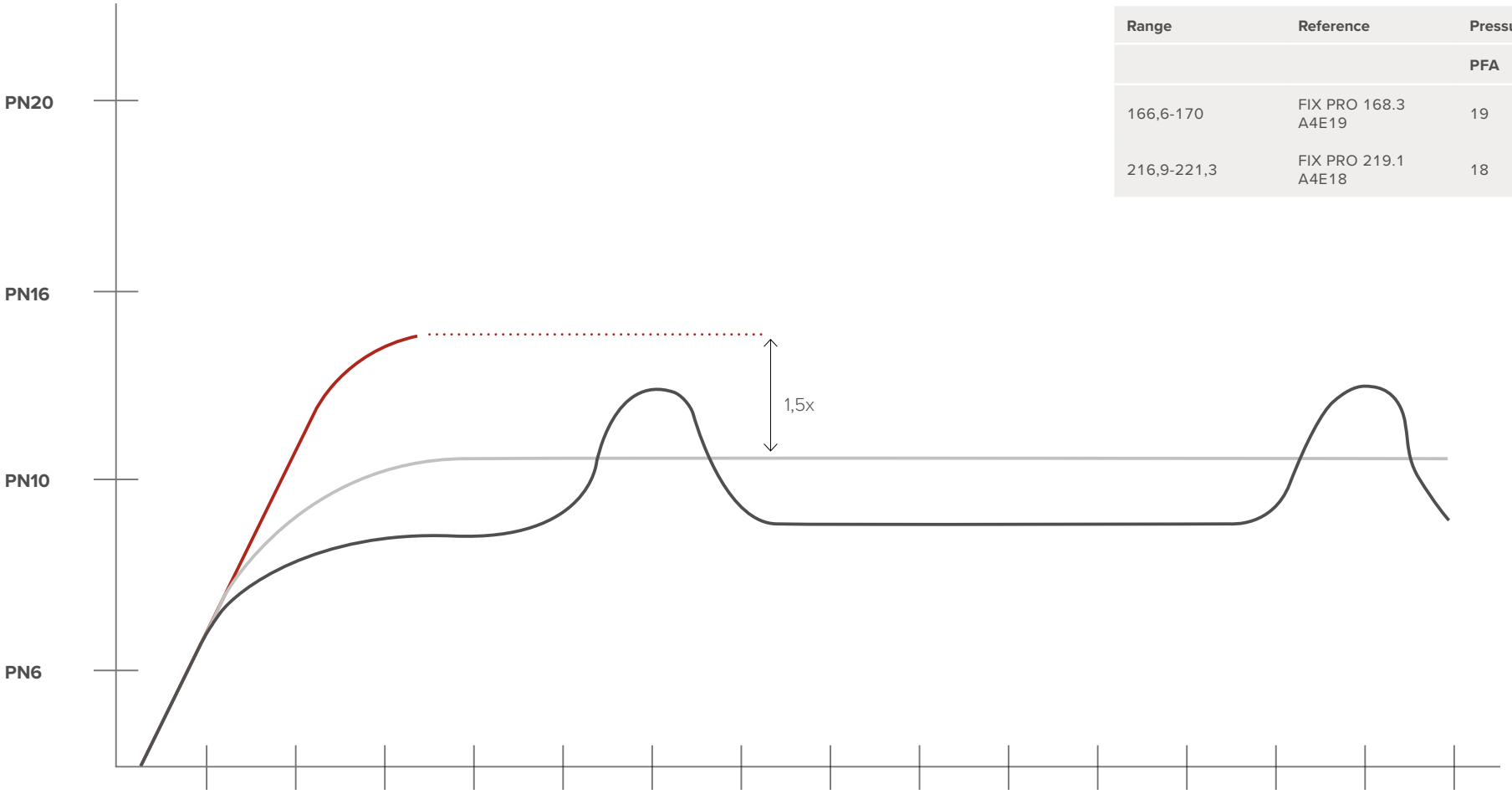
Pressure detail explanation



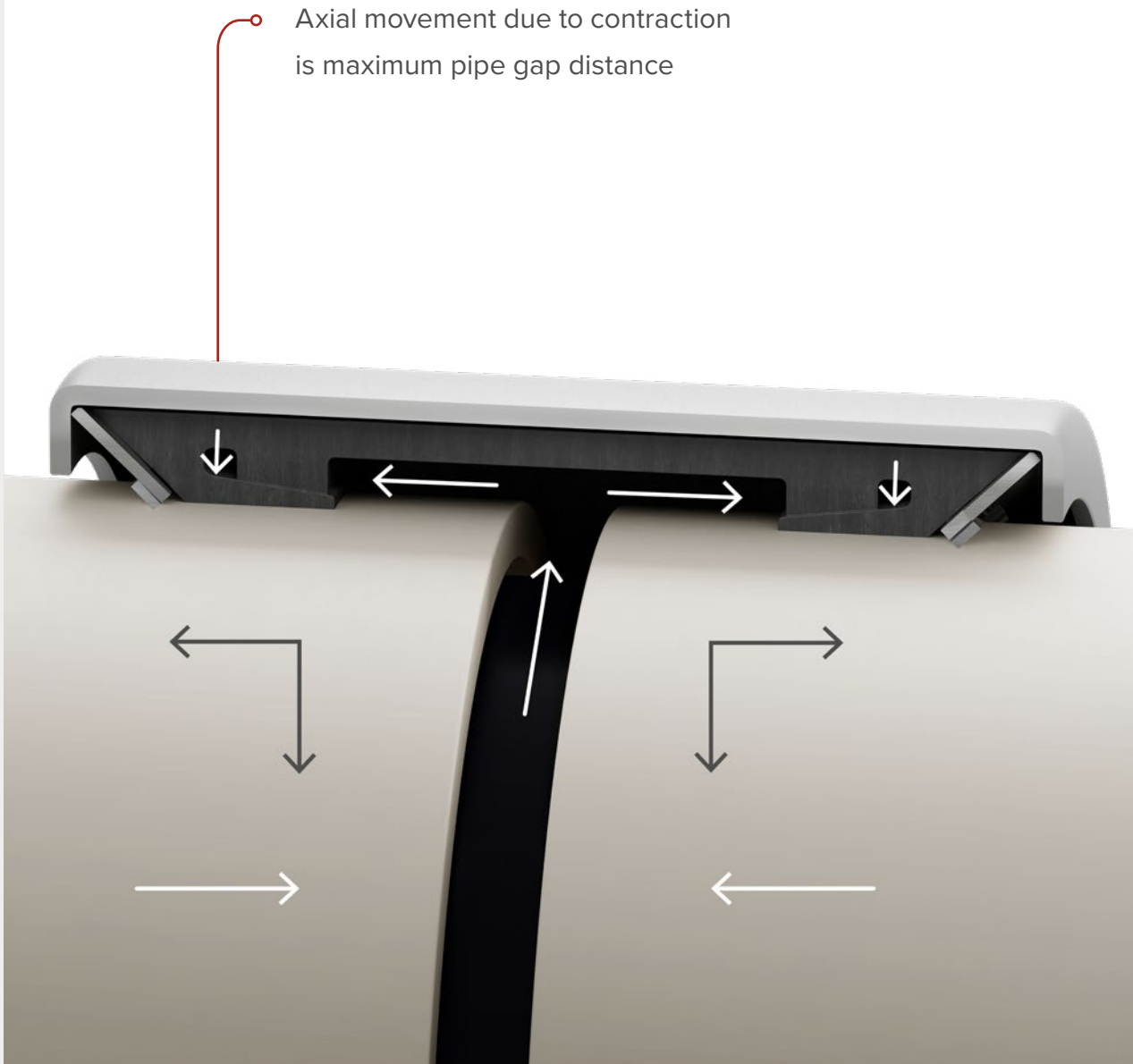
Range	Reference	Pressures		
		PFA	PMA	PEA
166,6-170	FIX PRO 168.3 A4E19	19	23	29
216,9-221,3	FIX PRO 219.1 A4E18	18	22	27

- **PEA:** Allowable Site Test Pressure
- **PMA:** Allowable Maximjum Operating Pressure PUNCTUALLY
- **PFA:** Allowable Operating Pressure CONTINUOSLY

Pipe gap between pipe ends

The FIX PRO coupling is designed to be pull-out resitant. The restraining rings are taking the axial thrust of the pipe and prevent the pipe from moving axially out of the coupling.

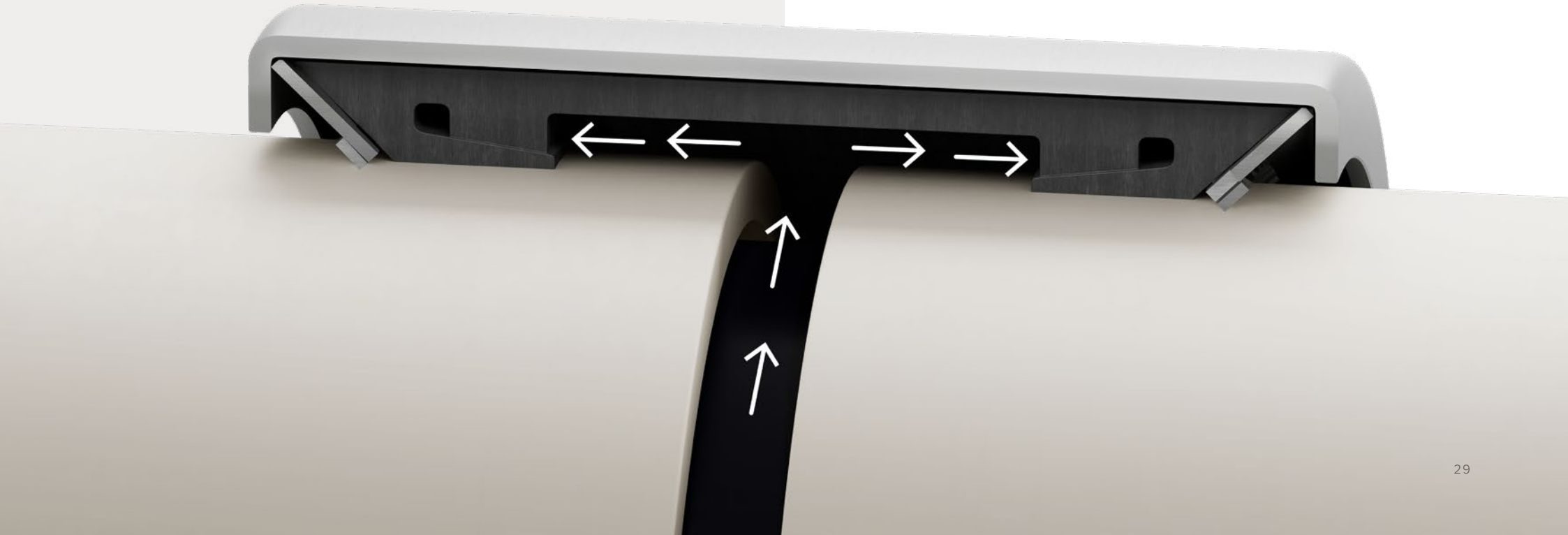
It is important to understand that the coupling is designed to prevent the pipe moving out of the coupling The maximum pipe gap is the distance that coupling is designed for pipe contraction. A bigger pipe separation is permitted whenever the maximum contraction movement is less than the allowable pipe gap.



Influence of pipe thickness
on coupling behavior

In the scope of axial restriction coupling systems, the thickness of the pipe where the coupling is set plays a key role in determining the performance of the connection. It's not only the coupling that has to withstand the pressure, but also the pipe – the coupling set must endure it; and here the pipe thickness plays a significant role.

As the axial separating force between the connected pipes increases due to pressure, the collapse of the pipe can lead to the displacement of the anchoring ring from its intended inclination angle, potentially resulting in the lifting and separation of the pipe coupling rubber connection. Additionally, the efficiency of the clamping decreases, potentially causing the coupling to slip.



Performance tests
according to BS 8561 and EN14525
on stainless steel pipe

There are three types pressure test to be carried out:

1

Leaktightness of joints to positive internal pressure

The test pressure shall be kept constant during 2h at PFA x 1,5 + 5 bar. For a PFA 16bar coupling, the test pressure is 29bar. There are no end restraints so the axial thrust is taken by the restrained coupling for the complete two hours.

2

Leaktightness of joints to negative internal pressure

The test assembly shall be evacuated to a negative pressure of 0.8 bar and then isolated from the vacuum pump. The test assembly shall be left under vacuum for at least 2 hours without changing the pressure.

ALL PRESSURE TESTS HAVE TO BE CARRIED OUT ON A SPECIFIC TEST APARATUS WHICH ALLOWS THE COUPLING TO BE TESTED UNDER VARIOUS TEST CONDITIONS LIKE DEFLECTED, ALIGNED, WITHDRAWN, AND SHEARLOAD.

3

Leaktightness of joints to dynamic internal pressure

The coupling shall be tested for 24,000 cycles between PMA and PMA – 5 bar. A full test cycle is 5 seconds at PMA then a steady reduction to PMA-5 bar with a hold of 5 seconds before increasing steadily back to PMA. For a PFA 16 bar coupling, the cycle pressure is between 19 bar and 14 bar. The restraint coupling has to take the full axial thrust for 24,000 cycles.

Strength and resistance to distortion

The test determines the resistance of the coupling to damage when fasteners are overtightened.
All three pressure tests are carried out with a 1.5x the manufacturer's recommended bolt torque.

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Hydrostatic pressure and axial force

Hydrostatic pressure

Hydrostatic pressure refers to the force exerted on a surface by a fluid, at rest or in motion; increased by external means such as pressurization induced by a hydraulic pump or other similar device.

This phenomenon results in a uniform pressure distributed in all directions within the fluid, that in turn generates loads that must be absorbed by the rubber gasket in the sealing of the pipe coupling.

Axial force

When a fluid flows through a pipeline and encounters a curve, for instance, the fluid velocity on the outer side of the curve is greater than on the inner side due to the need to cover a greater distance in the same time interval.

This creates a pressure difference and, consequently, a net force in the opposite direction of the change in direction. This force is known as ‘thrust force’. This situation occurs in pipe elbows. When the end of the pipeline is capped or a valve is installed, the hydrostatic pressure exerted on the projected surface of the cap or ball valve becomes an axial force that must be supported by the coupling.

Hydrostatic pressure

Allowed axial forces of the anchoring ring (kN)

Hydrostatic pressure PS:
Maximum hydrostatic pressure without considering axial restraining forces

Range	FIX PRO reference			Force
mm		emin mm	PS bar	Maximum restraint force kN
47,8-48,9	FIX PRO 48,3 A2E35	1,2	45	6,4
53,5-54,5	FIX PRO 54 A2E30	1,6	45	6,9
56,4-57,6	FIX PRO 57 A2E30	1,6	40	7,7
59,7-60,9	FIX PRO 60.3 A2E30	1,6	40	8,6
75,3-76,9	FIX PRO 76.1 A2E20	2,0	30	9,1
83,1-84,9	FIX PRO 84 A2E20	2,0	30	11,3
88-89,8	FIX PRO 88.9 A2E20	2,0	30	12,4
97-99	FIX PRO 98 A2E19	2,0	30	14,3
102,9-105,1	FIX PRO 104 A2E19	2,0	30	16,1
106,9-109,1	FIX PRO 108 A2E19	2,0	30	17,4
108,9-111,1	FIX PRO 110 A2E19	2,0	30	18,1
113,2-115,4	FIX PRO 114.3 A2E23	2,0 3,0	30 30	20,4 23,5
115-119	FIX PRO 118 A2E23	2,0 3,0	30 30	21,9 25,2
127,6-130,2	FIX PRO 129 A2E20	2,0 3,0	30 30	23,5 26,1
131,7-134,3	FIX PRO 133 A2E20	2,0 3,0	30 30	25 27,8
133-137	FIX PRO 135 A2E20	2,0 3,0	30 30	25,80 28,6
138,3-141,1	FIX PRO 139.7 A2E20	2,0 3,0	30 30	24,5 30,7

Hydrostatic pressure

Allowed axial forces of the anchoring ring (kN)

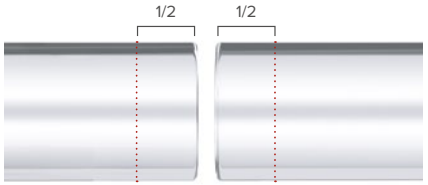
Range	FIX PRO reference			Force
mm		emin mm	PS bar	Maximum restraint force kN
142,6-145,4	FIX PRO 144 A2E20	2,0 3,0	30 30	26,1 32,6
152,4-155,6	FIX PRO 154 A2E20	2,0 3,0	30 30	27,9 37,3
157,4-160,6	FIX PRO 159 A2E19	2,0 3,0	30 30	29,8 37,7
166,6-170	FIX PRO 168.3 A2E19	2,0 3,0	30 30	31 42,1
192-195,5	FIX PRO 193.7 A2E10	2,0	30	29,5
192-195,5	FIX PRO 193.7 A2E18	3,0	38	53
203-207	FIX PRO 206 A2E10	2,0	24	33,3
203-207	FIX PRO 206 A2E18	3,0	30	60
208-212	FIX PRO 210 A2E10	2,0	24	34,6
208-212	FIX PRO 210 A2E18	3,0	30	62,3
216,9-221,3	FIX PRO 219.1 A2E10	2,0	24	37,7
216,9-221,3	FIX PRO 219.1 A2E18	3,0	30	67,9
242-247	FIX PRO 244.5 A2E6	2,0	30	28,2
242-247	FIX PRO 244.5 A2E12	3,0	38	56,3
252-257	FIX PRO 256 A2E6	2,0	24	30,9
252-257	FIX PRO 256 A2E12	3,0	30	61,8
264,5-269,5	FIX PRO 267 A2E6	2,0	24	33,6
264,5-269,5	FIX PRO 267 A2E12	3,0	30	67,2

Range	FIX PRO reference			Force
mm		emin mm	PS bar	Maximum restraint force kN
270,5-275,5	FIX PRO 273 A2E6	2,0	24	35,10
270,5-275,5	FIX PRO 273 A2E12	3,0	30	70,20
301-307	FIX PRO 306 A2E6	2,0 3,0	18 18	29,4 44,10
301-307	FIX PRO 306 A2E10	4,2	36	75,3
320,5-327	FIX PRO 323.9 A2E6	2,0 3,0	18 18	24,7 49,20
320,5-327	FIX PRO 323.9 A2E10	4,6	36	81,9
323-330 323-330 352-359	FIX PRO 326 A2E6 FIX PRO 326 A2E10 FIX PRO 355.6 A2E4	3,0 4,6 3,0	18 36 18	50,1 81,9 37,9
352-359	FIX PRO 355.6 A2E9	4,8	28	89,4
402,5-410,5	FIX PRO 406.4 A2E3	3,0	16	38,9
402,5-410,5	FIX PRO 406.4 A2E6	4,8	25	77,8
424-432 452,5-460,5	FIX PRO 428 A2E4 FIX PRO 457.2 A2E2	4,8 3,0	25 17	86,3 32,80
452,5-460,5	FIX PRO 457.2 A2E4	4,8	22	82
503,5-511,5	FIX PRO 508 A2E2	5,5	20	40,50
554,5-562,5	FIX PRO 558.8 A2E2	5,5	19	24,50
605-613	FIX PRO 609.6 A2E2	6,4	17	29,10

Fitting instructions

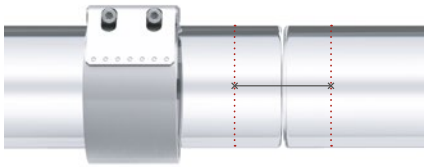
IF TESTING IS REQUIRED, YOU CAN CARRY OUT A HYDRAULIC TEST INCREASING THE PRESSURE UP TO PEA (1.5 TIMES WORKING PRESSURE PFA).

1. Clean the pipe ends and remove any irregularities.

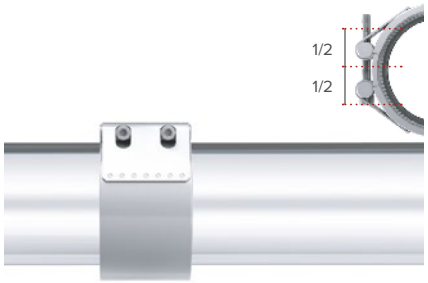


2. Measure and mark half the width of the coupling on each pipe end.

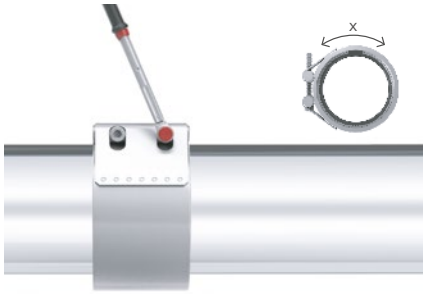
3. Slide the coupling over one pipe end without opening the coupling.



4. Bring the second pipe closer to the pipe end already fitted with the coupling. Align both pipes concentrically and make sure that they are resting on a firm support. Check the tolerances indicated on the label.



5. Slide the coupling into place, between the two marks (step 2). Make sure that the inner steel plate is correctly placed under the lock.



6. Do not rotate the coupling or the pipes while you are tightening the screws. Start tightening them with a ratchet spanner, alternating between the screws. important: Do not exceed the torque rate. If the lock has three screws, you must tighten the central screw first. Carry on tightening with a torque wrench after you have adjusted the wrench to the torque rate indicated on the label. Keep on tightening until you hear the typical “click” noise.

Remarks

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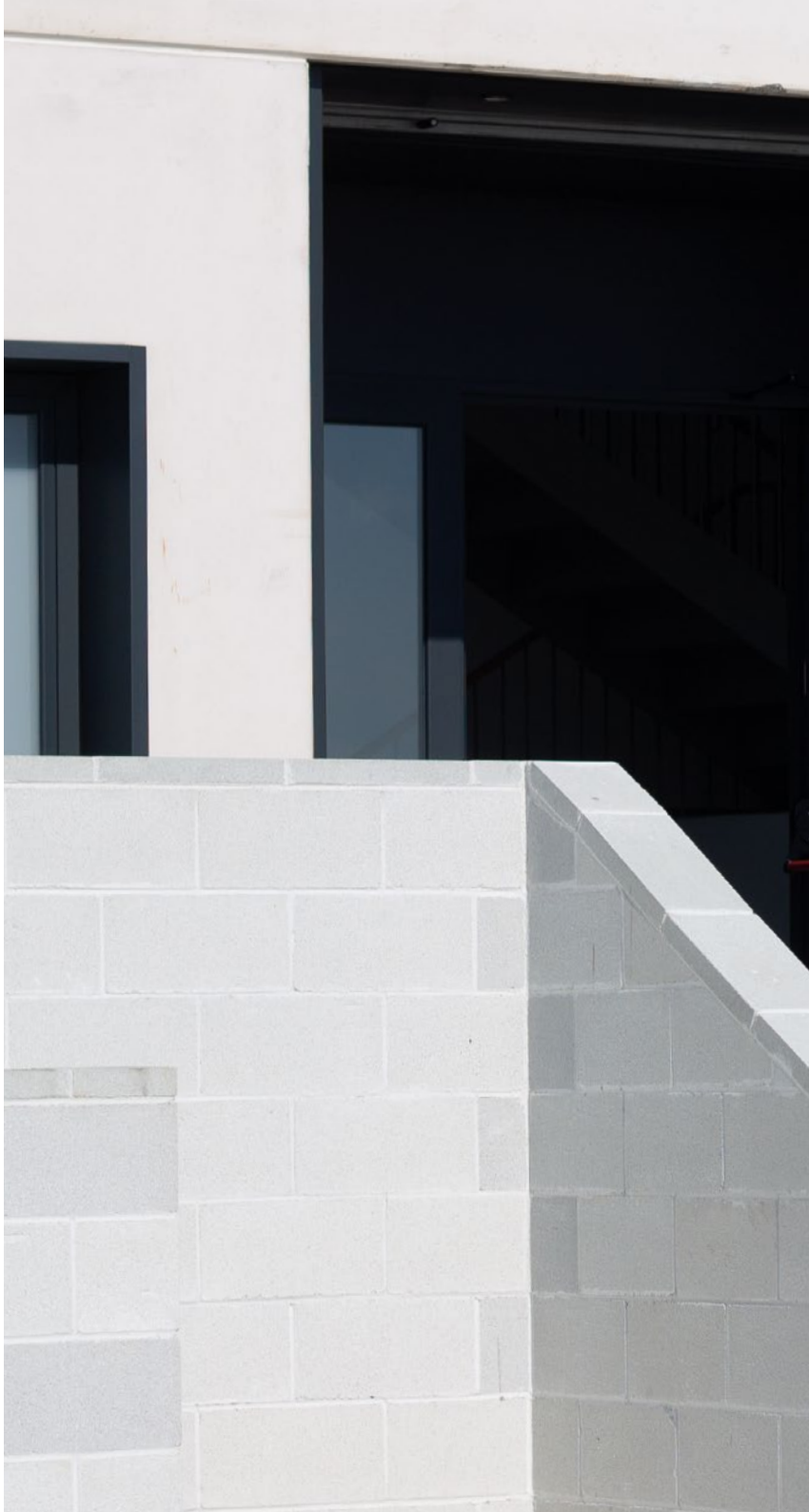

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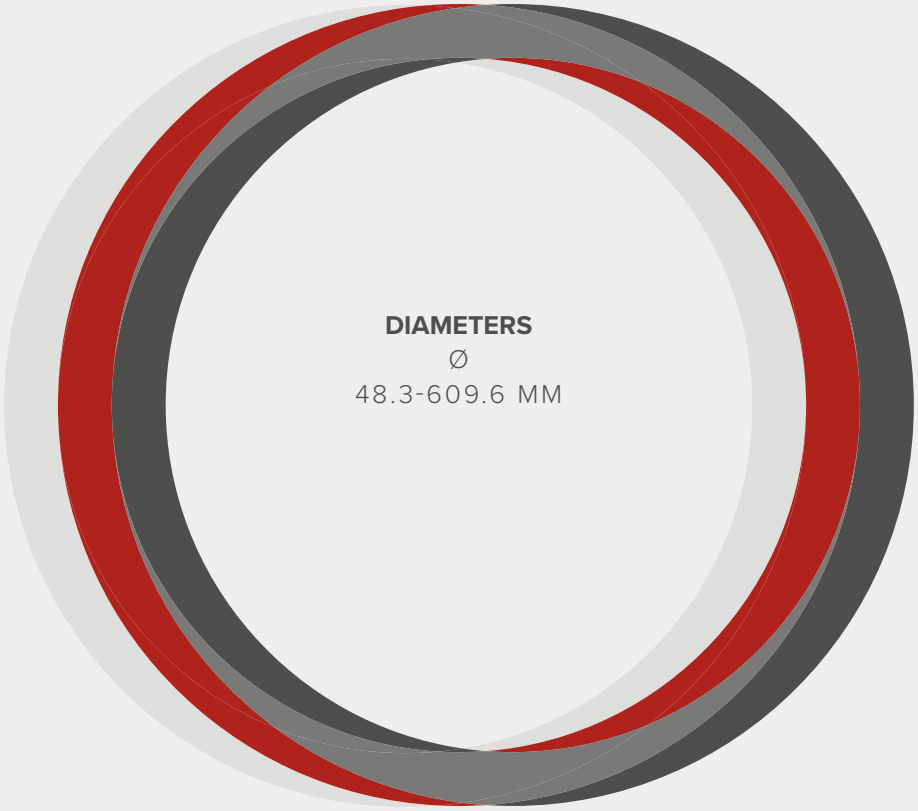

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