

A R M A T U R E S T O J A N O V I Ć

**ARMAS**

# PRODUCT CATALOG



Quality solutions, permanent certitude.



## Quality solutions, permanent certitude.

The aim of this catalog is to acquaint you with equipment produced by **ARMAS** which is applied for construction works (new investments) and reconstructions of pipelines, for daily maintenance of pipeline systems, and also for repairs of pipeline damages.

The **ARMAS** production program is derived from years of experience in design of water supply equipment, planning, construction and utilizing of waterworks objects. By cooperation with design and contractor companies, and also with final users, we recognized a lack of connection elements in the field of construction and exploitation of pipeline systems. Those elements should significantly unify and facilitate installation, handling and utilization of various pieces of equipment, as well as repairing of water supply network.

As the result of this cooperation, **ARMAS** joints are made with the idea of lowering investment costs needed for construction of large pipeline systems, and to enable fast and reliable repairs of all possible damages during maintenance works.

Alongside production of classic joints for all pipe types, we are also manufacturing numerous special joints, which are used for quick, easy and efficient repairing of leakages at the existing pipe joints and for connecting new pipelines to the existing water supply network, all that without pipe cutting or consumers being cut-off.

Company **ARMAS** was founded in 1998. We are very proud of the fact that during our perennial existence we had opportunity to work with very large number of clients and that there is no major water supply company in Serbia with whom we haven't established cooperation. Our joints are being successfully installed in water supply systems throughout the country.

During our existence, we have also established international cooperation, mainly with partners from Montenegro and Federation of Bosnia and Herzegovina, as well as Macedonia and Hungary.

Company **ARMAS** has Quality Management System, which is in compliance with the SRPS ISO 9001:2015 standard, for design and production of armature for pipeline systems.

We are regular exhibitor at Belgrade's Water Fair and frequent participant of major symposiums regarding water, both in Serbia and the region.

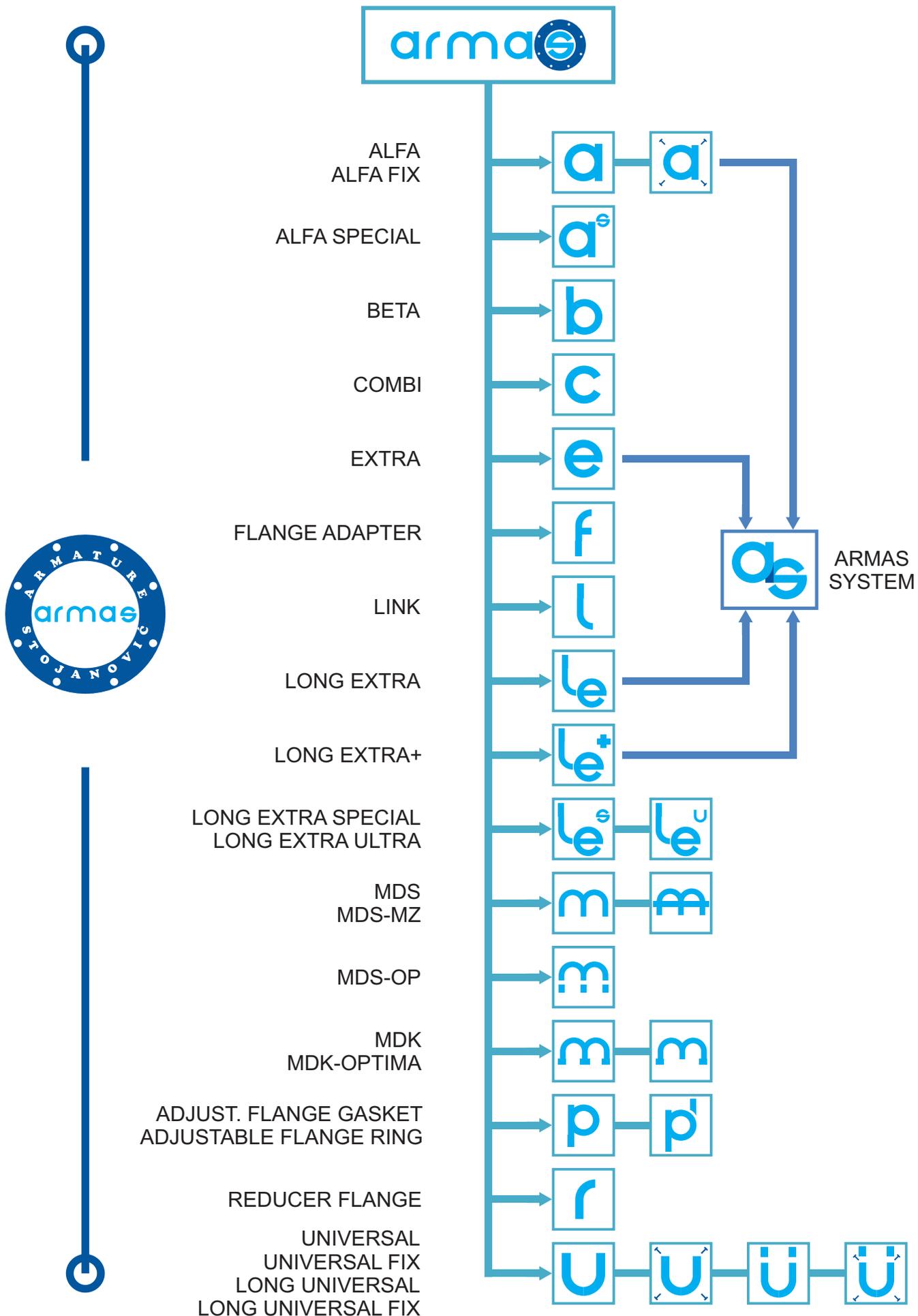
For any additional information we suggest that you take a look at our website: [www.armaco.rs](http://www.armaco.rs). We are inviting all interested parties to contact us, we will be happy to meet your request.

With desire to deepen our existing and make new cooperation,

Slobodan Stojanović  
dipl.ing.maš.  
owner  
**arma** 



# ARMAS PRODUCTION PROGRAM



## ARMAS PRODUCTION PROGRAM

All **ARMAS** products are made from cast iron EN-GJS-400 (GGG40) or EN-GJS-500 (GGG50) according to the SRPS EN 1563 standard, from cast iron EN-GJL-250(GG25) according to the SRPS EN 1561 standard and from steel S235JRG2 according to the SRPS EN 10027-1.

Dimensions of flanges, alongside the arrangement of holes for flange connections, are made according to the SRPS EN 1092-2 standard.

All **ARMAS** products are protected against corrosion by plastification with epoxy powder with minimal thickness of 250 µm, RAL 5010 colour, with bolt goods protected by galvanization, or made from stainless steel.

Gaskets for **ARMAS** joints are made from EPDM, according to the SRPS EN 681-1 stand., with needed firmness and resilience to ageing, which enables reliable and permanent sealing.

All **ARMAS** products have *Health Certificate* which guarantees that all products or parts of products which are in direct contact with drinking water fulfill health and safety criteria, issued by the domestic accredited laboratory (according to the requests made by the SRPS ISO/IEC 17025 standard).

Delivered **ARMAS** products are accompanied by the *Quality Certificate*, alongside *Manual and Installation Instructions*, *Guarantee*, as well as the *Test Report of strength and sealing of the casing under pressure*, according to the SRPS EN 12266-1 standard, issued by the domestic accredited laboratory (according to the requests made by the SRPS ISO/IEC 17025 standard).

In the following table **ARMAS** products are listed, alongside with the short description of product and its use.

<b>a</b>	<b>ALFA I GENERATION</b>	Joint for connection between flange and the end of certain pipe. <b>ALFA-AC</b> for asbest.-cement pipes, <b>ALFA-PVC</b> for PVC pipes, <b>ALFA-PE</b> for PE pipes, <b>ALFA-LG</b> for cast iron pipes etc.
<b>a</b>	<b>ALFA II GENERATION</b>	Improved version which is used for the same purpose as the first generation, with the advantage of being fully universal, i.e. connecting flange with any pipe of the same nominal diameter.
<b>a</b>	<b>ALFA FIX</b>	Joint for connecting flange of the shutter or some fitting with pipes of any material with the same nominal diameter, while the connection is secured against pipe's axial movement.
<b>a<sup>s</sup></b>	<b>ALFA SPECIAL</b>	Joint for connecting flange to the end of certain pipe, when, due to the leakage, the E-piece is removed and it is necessary to install new one, while both pipe and flange are immovable.
<b>b</b>	<b>BETA</b>	Joints for mutual connecting polyethylene and PVC pipes. If two PE pipes are connected they're called <b>BETA-PE</b> , while for connecting two PVC pipes <b>BETA-PVC</b> are used.
<b>c</b>	<b>COMBI</b>	Joint for connecting two pipes made of different materials and/or with big difference in outer diameters. Very wide range of possible diameters to mutually connect.
<b>e</b>	<b>EXTRA</b>	Universal joint for pipe breakage, when the pipe rupture occurs, with the repairing done without pipe cutting. There are three types offered: <b>EXTRA</b> , <b>EXTRA-C</b> and <b>EXTRA-D</b>
<b>f</b>	<b>FLANGE ADAPTER</b>	Joints which are used as the substitution for classic E-pieces. Recommended for installing at places where the room for installation is small, while special advantage being low price.
<b>l</b>	<b>LINK WITH SINGLE SEALING</b>	Joints for stopping leakage at the existing pipe connections, without pipe cutting or consumers being cut-off. Offered types are <b>LINK-LG-O</b> , <b>LINK-LG-ŽI</b> , <b>LINK-BETON</b> and <b>LINK-PVC</b> .
<b>l</b>	<b>LINK WITH DOUBLE SEALING</b>	Joints for stopping leakage without pipe cutting or consumers being cut-off on connections between asbestos-cement pipes <b>LINK-AC(-ŽIBO)</b> and for PE and polyester pipes <b>LINK-PE(S)</b> .

	LONG EXTRA	Universal joint for pipe breakage, which is used for lengths of pipe ruptures in the interval between 300 and 500 mm. The repair is done without pipe cutting or consumers being cut-off.
	LONG EXTRA+	These joints are used for connecting one or two new secondary pipes to the primary pipeline, which can be newly formed or already in exploitation. There are several types of these joints.
	LONG EXTRA-P	Universal joint for connecting new pipe to the existing pipeline without installing T, F-F and E pieces, and without pipe cutting or consumers being cut-off. Most common of <b>LONG EXTRA+</b> .
	LONG EXTRA SPECIAL	Joint for repairing leakage at the joint when there is damage of the pipe and/or existing joint ( <i>Dalma, Gibault, Beto</i> ), and it's requested that joint remains and no consumers being cut-off.
	LONG EXTRA ULTRA	Joint for repairing leakage at the joint when there is damage of the pipe and/or existing E-piece, and it is requested that joint remains and no consumers being cut-off (no pipe cutting).
	MDS	Detachable joint for easy installation and removal of pipeline armature. These joints are 40% lighter and half the length, compared to the usual types of detachable joints.
	MDS-MZ	Detachable joint for easy installation and removal of pipeline armature. It is used during the installation of interpreter shutters into the pipeline system.
	MDS-OP	Detachable joint for reconstruction of node connections, when the old, oval shutters, are replaced with new, flat ones, which have smaller installation lengths. Difference is covered by joint.
	MDK	Classic detachable joint with three standard flanges, for easy installation and removal of various pipeline armature into waterworks systems.
	MDK-OPTIMA	Classic detachable joint with three flanges and all needed bolts, while not all of them are of maximum length, which lowers installation time and enables bigger angular movement.
	ADJUSTABLE FLANGE GASKET - PPZ	Specially designed and manufactured gasket for flange connection, which covers axial shuffling from 0 to 8°. Regulation of axial shuffling is done instantly and simply.
	ADJUSTABLE FLANGE RING - PPP	Specially designed and manufactured metal ring for flange connection, which covers axial shuffling from 0 do 6°. Regulation of axial shuffling is done instantly and simply.
	REDUCER FLANGE	Joints which are used as the substitution for FFR fittings, when smaller installation length is required. All needed bolt goods for making a connection are delivered with the joint.
	UNIVERSAL I GENERATION	Universal joints for pipe breakage, for connecting pipes of the same or different material. Used in cases when the size of pipe rupture makes it necessary to cut pipe and put a new piece.
	UNIVERSAL II GENERATION	Improved version which is used for the same purpose as the first generation, with the advantage of being fully universal, i.e. connecting pipes of any material, with same nominal diameter.
	UNIVERSAL FIX	Joint for mutually connecting pipes of any material with the same nominal diameter, while the connection is secured against pipe's axial movement with the special metal fixers.
	LONG UNIVERSAL	Universal joint for pipe breakage, when it is necessary to cut pipe. By installing this one joint, repair is made on the rupture up to 600 mm by default, and up to 2 m on request.
	LONG UNIVERSAL FIX	Universal joints for pipe breakage, identical by characteristics to <b>LONG UNIVERSAL</b> joints, with the difference that they have special metal fixers in order to prevent pipe's axial movement.

# a ALFA

ALFA joints are used as a replacement for certain types of fittings. They are used for connecting the specific pipe with flange of shutter, fitting, cast iron or steel pipe.

ALFA joints are divided into two generations, based on their constructive solutions: **first (I)** and **second (II)**. The main difference between these two generations lies in tendency of constructor to reach full universality, so that second generation ALFA joints are actually upgraded version of the first generation ALFA joints, with all the features and advantages of the first generation.

ALFA I generation joints are made separately for different types of pipe's material, as specified: AC - for asbest.-cement pipes, Č - for steel pipes, LG - for cast iron pipes, PE - for polyethylene pipes, PES - for polyester pipes, PVC - for PVC pipes (table on page 31).

Main advantages of using ALFA I generation joints are:

- very simple installation and removal of the joint, which is not the case with the usual fittings;
- possibility of using joint as a detachable flange during installation of shutter in pipeline system;
- possibility of gasket tightening in case that, from whatever reason, leakage occurs.



ALFA I generation

Examples of installation of the joints:



ALFA-AC DN350 - Topola



ALFA-Č DN800 - Pančevo



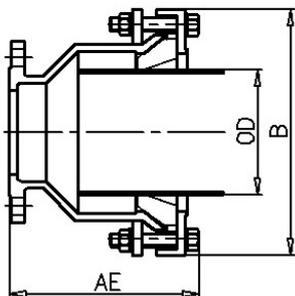
ALFA-AC DN500 - Novi Pazar



ALFA-PVC400 DN400 - Knjaževac

Primarily for installation in pipelines with nominal diameter over DN350, where universality is not a must and lower weight making installation easier.

ALFA II generation joints are made mutually identical for all types of material and pipes which are covered by ALFA I joints. There is difference in second generation ALFA-PE joint which has rubber gasket with toothed ring, which is also the case in the first generation. ALFA II generation joints are completely universal and connect flange and pipe of any material with same nominal diameter.



ALFA II generation

DN	OD range	Flange drilling	Bolts	Max AE	B
50	58 - 76	PN10/PN16	4 x M12	130	160
65	63 - 86	PN10/PN16	4 x M12	130	170
80	84 - 107	PN10/PN16	4 x M16	170	210
100	107 - 133	PN10/PN16	4 x M16	210	240
125	132 - 158	PN10/PN16	4 x M16	180	270
150	158 - 193	PN10/PN16	4 x M16	250	310
200 A	198 - 230	PN10 or PN16	4 x M16	230	350
200 B	218 - 256	PN10 or PN16	4 x M16	260	370
250	266 - 310	PN10 or PN16	6 x M16	280	430
300	315 - 356	PN10 or PN16	6 x M16	300	480

Example of installation of ALFA II generation joints:



Primarily for installation in pipelines with nominal diameter from DN50 to DN300, where universality is very important, whereby one joint covers all pipe types, even the class D of asbestos-cement pipes.

ALFA (266-310) DN250 - Belgrade

Examples of installation of ALFA special construction Ø1400mm for DN1200 pipe - Belgrade



Special construction of these ALFA joints prevented the wall of concrete pipe to erode thus solving very big and important issue.

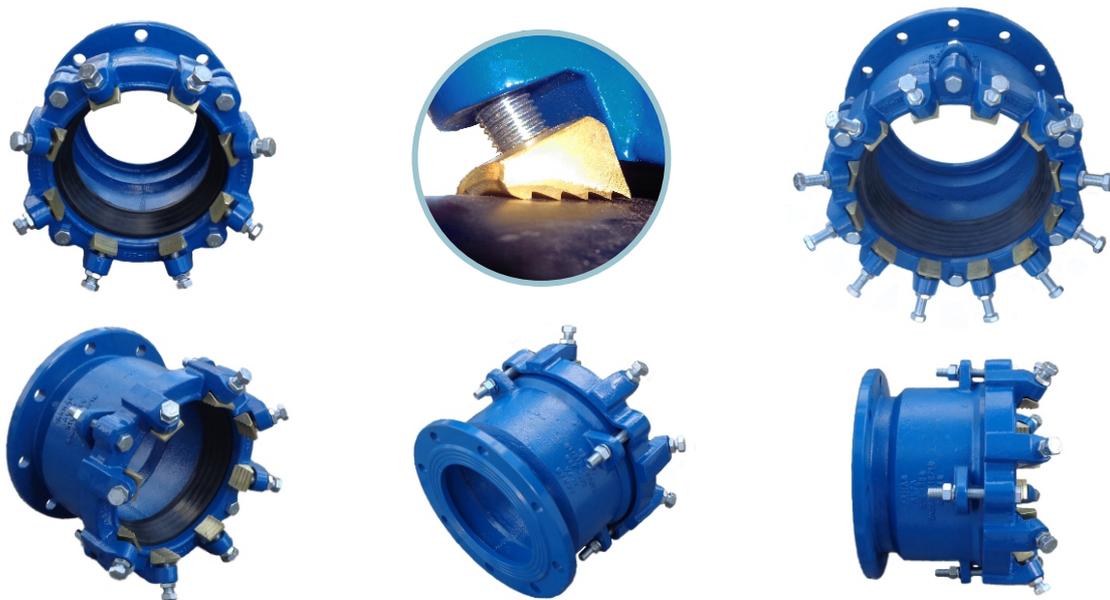


# ALFA FIX

ALFA FIX joints are based on existing production program developed for ALFA joints, with the distinction that, instead of usual flanges, there are special flanges with unique toothed metal fixers which are used for securing the connection against the axial movement of the pipe. All installation ranges (table on page 7) and other general characteristics which are stated for the ALFA joints, are also valid for ALFA FIX joints.

- Two special and unique advantages of the constructive solution with separate fixers are:
- metal fixers are fasten on their own, thus making possible to have separate tightening of the rubber gasket, which makes the sealing. This allows to apply different amount of force for fixers and gasket, so the gasket can be tightened with a much larger force, in order to facilitate reliable sealing, while the fixers can be tightened with a smaller force so that pipes made from more fragile materials would not be damaged;
  - each fixer has its own, rather large, tightening scope, which successfully deals with problems of pipe ovality, which is a common thing with pipes that have long been in exploitation.

ALFA FIX joints are, like ALFA joints, part of ARMAS SYSTEM.



ALFA FIX, with display of fixer in contact with the pipe

Example of installation of the joints:



Separate tightening of the gasket and metal fixers makes possible to have different amounts of force applied to each of them, which helps protect the pipe from damage during installation (especially for asbest.-cement pipes).

ALFA FIX DN200 - Foča

# a<sup>s</sup> ALFA SPECIAL

**ALFA SPECIAL** joint is used for connecting flange and the end of certain pipe in case when, due to leakage on the connection, existing E-piece has been removed and a new one is needed to be installed in conditions when both the pipe and the flange are immovable, and there is very limited space for installation.

For installing **ALFA SPECIAL** joint it is necessary to provide only 50 to 60 mm of space between the flange and the end of the pipe, in order to facilitate inserting parts of the joint and making connection. Joint itself consists of parts, including the main body of the joint which is detachable, in order to make insertion of parts in limited space and making connection as easy as possible.

**ALFA SPECIAL** joints are developed based on ALFA I generation joints, with all stated advantages, characteristics and installation scopes (table on page 31).



ALFA SPECIAL

*Example of installation of the joint (and repairing failure in steps):*



①



②



③



④



⑤



⑥



⑦



⑧

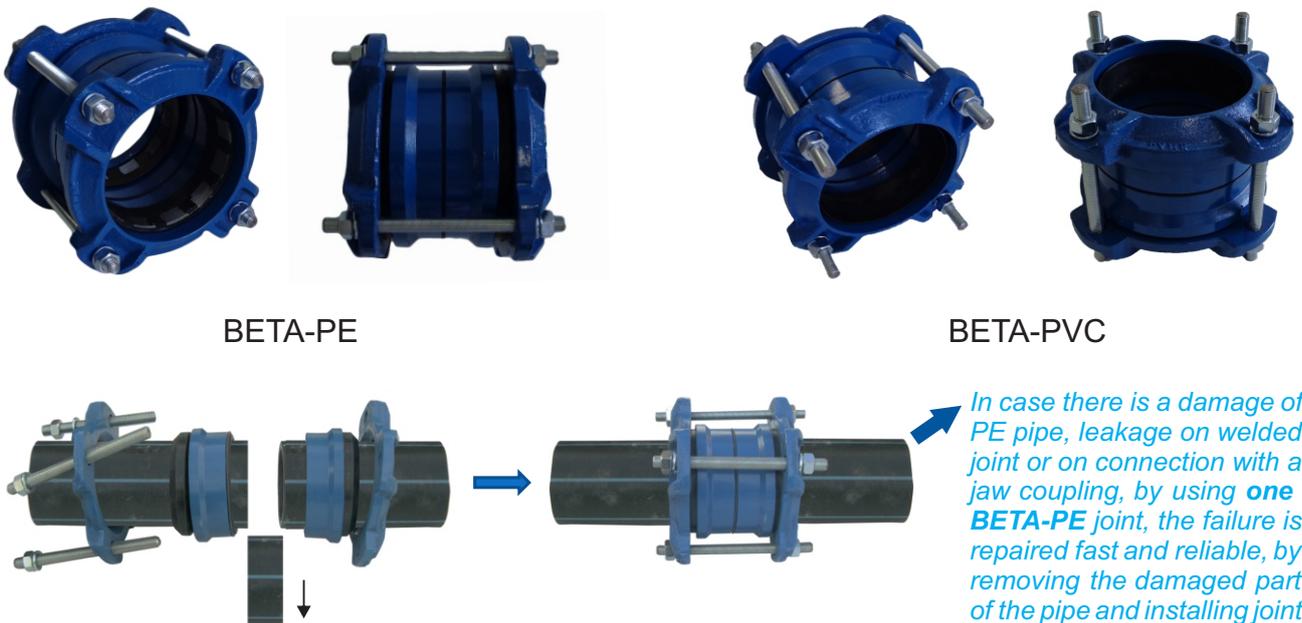
ALFA SPECIAL DN300 - Šid

# b BETA

BETA joints are used for mutual connection between polyethylene pipes and PVC pipes. If the joint is connecting two polyethylene pipes it is marked **BETA-PE** while in case when connecting two PVC pipes it is marked **BETA-PVC** (table on page 31).

These joints have wide application in repairing failures on PVC pipelines and as an alternative for jaw couplings, thanks to its constructive advantages, of which the most important are:

- in case of **BETA-PE** joints, diameter of the toothed ring which fix position of polyethylene pipe is adjustable, so that is possible to choose depth of ring engravement into the pipe wall, and sealing is not achieved on toothed part, but with a rubber gasket which has adjustable overlap;
- in case of **BETA-PVC** joints, size of the overlap, i.e. specific pressure of the gasket on pipe, is adjustable with the possibility of gasket tightening in case that, for some reason, leakage occurs.



Demonstration of fast repairing of damages on polyethylene pipes by using BETA-PE joints

# f FLANGE ADAPTER

**FLANGE ADAPTER** made by **ARMAS** is a joint which is used as the replacement for standard E-pieces, i.e. for connecting pipe with the flange of shutter, or some armature with flange. It is recommended for installation in places where space for installation is limited, and another advantage is that it has a lower price compared to usual fittings with the same purpose.



FLANGE ADAPTER

# C COMBI

COMBI joints came from customers' desire to make connections between pipes made from different materials and/or with great difference in outer diameters.

These joints are used in cases when joints with the usual diameter extent can not be used for connecting pipes with great difference in outer diameters.

Looking at constructive solution, COMBI joints are similar to first generation UNIVERSAL joints, difference being that they are not symmetrical and cover very different diameters on each side, thus being a remarkable product that can cover a vast number of combinations of diameters and pipes from which to make a connection, without any other piece of armature.



COMBI

The table presents part of the diameter scopes, with gradation between nominal diameters (DN), which are covered, by default, using COMBI joints.

If the hydraulic circumstances allow it, it is possible to connect pipes with much greater difference in diameters, for example, any diameter scope with any diameter scope from the presented table.

DN	DN200	DN200 C	DN200 D	DN250	DN250 C	DN250 D	DN300	DN300 C	DN300 D	DN350	DN350 C	DN350 D	DN
DN200	219-234	224-242	240-258	267-284	280-296	302-317	315-330	342-357	360-375	374-394	398-412	419-435	DN350 D
DN200 C	224-242	240-258	267-284	280-296	302-317	315-330	342-357	360-375	374-394	398-412	419-435	398-412	DN400
DN200 D	240-258	267-284	280-296	302-317	315-330	342-357	360-375	374-394	398-412	419-435	398-412	419-435	DN400
DN250	267-284	280-296	302-317	315-330	342-357	360-375	374-394	398-412	419-435	398-412	419-435	456-470	DN400 C
DN250 C	280-296	302-317	315-330	342-357	360-375	374-394	398-412	419-435	398-412	419-435	456-470	480-498	DN400 D
DN250 D	302-317	315-330	342-357	360-375	374-394	398-412	419-435	398-412	419-435	456-470	480-498	496-512	DN450
DN300	315-330	342-357	360-375	374-394	398-412	419-435	398-412	419-435	456-470	480-498	496-512	508-526	DN450 C
DN300 C	342-357	360-375	374-394	398-412	419-435	398-412	419-435	456-470	480-498	496-512	508-526	540-556	DN450 D
DN300 D	360-375	374-394	398-412	419-435	398-412	419-435	456-470	480-498	496-512	508-526	540-556	496-512	DN500
DN350	374-394	398-412	419-435	398-412	419-435	456-470	480-498	496-512	508-526	540-556	496-512	523-540	DN500
DN350 C	398-412	419-435	398-412	419-435	456-470	480-498	496-512	508-526	540-556	496-512	523-540	568-582	DN500 C
DN350 D	419-435	398-412	419-435	456-470	480-498	496-512	508-526	540-556	496-512	523-540	568-582	600-616	DN500 D
DN	DN350 D	DN400	DN400	DN400 C	DN400 D	DN450	DN450 C	DN450 D	DN500	DN500	DN500 C	DN500 D	DN

\* All nominal diameters and their scopes, which form one gathering in the straight line, are possible combinations, so, for example, it's possible to combine all diameters & their scopes for DN200-DN350D or DN250D-DN450 etc.

Example of installation of the joint:



By installing one COMBI joint, it is possible to connect two pipes with a very different diameter and/or made from different material, with the covered diameter scope given partly in the table.

COMBI 225-200 DN200 - Belgrade



# EXTRA

EXTRA joints are universal joints for pipe breakage which facilitate repairing of pipes without cutting them. These joints are used for repairs of pipeline failures when a pipe rupture occurs, or as a substitution for existing joint if there is a leakage on the connection.

We offer three types of these joints: EXTRA, EXTRA-C and EXTRA-D (table on page 31).

Basic advantages of using EXTRA joints are:

- repair is made without pipe cutting and without consumers being cut-off;
- for repair of one failure one joint is enough;
- if there is a damage on sealing surface of the pipe at the place where *Gibault, Vitlak, Dalma* (or some other) joint was, by installing EXTRA joint the failure is repaired, without cutting that part of the pipe, because distance between gaskets of EXTRA joint is greater than in stated joints;
- the allowed angular deviation of connecting pipes is up to 8°.

EXTRA joints are part of ARMAS SYSTEM.



EXTRA

Examples of installation of the joints (and repairing failure in steps):



①



②



③

EXTRA DN350 - Topola



EXTRA-B DN500 - Knjaževac



EXTRA DN500 - Šid



EXTRA-C DN500 - Prigrevica





# LONG EXTRA

**LONG EXTRA** joints are used for repairing of pipe failures in case that pipe breakage occurs, or as a substitution for existing joint if there is a leakage on the connection. These joints are used for major breakages (300-500 mm, depending on pipe's nominal diameter).

Basic advantages of using **LONG EXTRA** joints are:

- repair is made without pipe cutting (for small leakages even without consumers being cut-off);
- with one joint you can repair pipe failure on pipe with the same nominal diameter regardless of the pipe's type of material (table on page 15);
- if there is a damage on sealing surface of the pipe at the place where *Gibault, Vitlak, Dalma* (or some other) joint was, by installing **LONG EXTRA** joint the failure is repaired, without cutting that part of the pipe, because distance between gaskets in this case is greater than in stated joints;
- the allowed angular deviation of connecting pipes is up to 5°.

**LONG EXTRA** joints are part of **ARMAS SYSTEM**.



LONG EXTRA

Examples of installation of the joints (and repairing failure in steps):



①



②



③

LONG EXTRA DN400 - *Bela Crkva*



①



②



LONG EXTRA DN200 - *Šid*

LONG EXTRA DN500 - *Knjaževac*





# LONG EXTRA+

LONG EXTRA+ joints are used for connecting one or two secondary pipelines on the primary pipeline, while primary pipeline can be already in exploitation or in the process of construction like the secondary pipeline(s).

LONG EXTRA+ joints replace certain fittings and E-pieces in installation, while the installation of joint is made without pipe cutting and, under specific conditions, without consumers being cut-off.

Depending on the number of secondary pipelines, and their position in relation to the primary pipeline, there are following types of joints:

- LONG EXTRA-P
- LONG EXTRA-P45
- LONG EXTRA-P/P
- LONG EXTRA-P/P45
- LONG EXTRA-P45/P45

Basic advantages of using LONG EXTRA+ joints are represented in fact that during the installation of secondary pipeline(s), pipe of the primary pipeline is not being cut, which makes forming the pipe connection, i.e. installation of the joint, simple, fast and easy.

With this way of installing, every possibility for water power stroke is eliminated (because there is no pipe cutting during the installation of the joint, so there is no opportunity for air to enter the pipe), and advantage of installation without turning off the water is that after the installation of the pipeline there is no blurred water, nor are possible consumers cut-off during the installation.

LONG EXTRA+ joints are part of ARMAS SYSTEM.



LONG EXTRA-P



LONG EXTRA-P45



LONG EXTRA-P/P



LONG EXTRA-P/P45



LONG EXTRA-P45/P45

Examples of installation of the joints (and solving problem in steps):



①



②



③

LONG EXTRA-P DN400/DN100 - Lazarevac



①



②



LONG EXTRA-P DN400/DN150 - Pančevo

LONG EXTRA-P DN200/DN80  
Knjaževac



Although LONG EXTRA-P joints are the most common type of LONG EXTRA+ joints, other are also very interesting and useful when there is desire to connect new pipeline(s) easily and fast. For further details look at page 30 of this catalog.

Example of connection made with LONG EXTRA-P and ALFA joint

Table shows application scopes for LONG EXTRA and LONG EXTRA+ joints, as well as the part of possible connections for secondary pipeline(s) for LONG EXTRA+ joints (primarily listed some of the possible connections for cast iron variant, while significantly more options are available in case when joints are made as welded constructions, when there is also no limitation for linkage between nominal diameters of connected pipes).

LONG EXTRA, LONG EXTRA+

DN	PN	Application scope
100	10/16	110 - 128
150	10/16	158 - 176
150	10/16	176 - 194
200	10/16	219 - 234
200	10/16	236 - 254
250	10/16	267 - 285
250	10/16	280 - 298
300	10/16	315 - 332
300/350	10/16	342 - 360
400	10/16	398 - 416
400	10/16	419 - 436
400/450	10/16	456 - 472
500	10/16	498 - 514
500	10/16	519 - 536
500	10/16	568 - 583

Possible secondary pipeline(s) for LONG EXTRA+

DN 80	DN 100	DN 150	DN 200	DN 250	DN 300
○	○				
○	○				
○	○				
○	○	○			
○	○	○			
○	○	○	○		
○	○	○	○		
○	○	○	○	X	
○	○	○	○	X	
○	○	○	○	X	X
○	○	○	○	X	X
○	○	○	○	X	X
○	○	○	○	X	X
○	○	○	○	X	X

○ - possible flanges for secondary pipeline(s) in standard, cast iron, variant  
 X - possible flanges for secondary pipeline(s) in case of welded construction



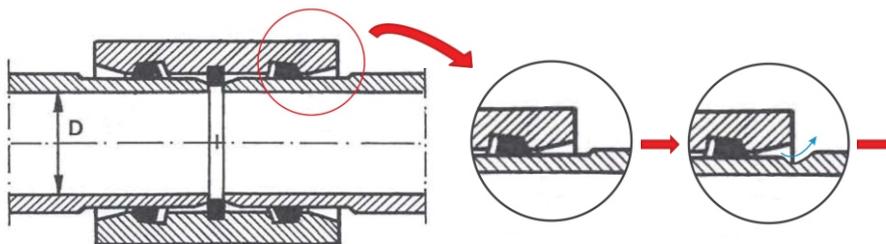
# LONG EXTRA SPECIAL

LONG EXTRA SPECIAL joints are used for sanation of leakages at the connection points, with additional damage of the pipe or the connecting joint (*Dalma, Vitlak, Gibault, Beto*), upon request that there should be no water turning off in the pipeline system.

By installing LONG EXTRA SPECIAL joint the existing connection joint is not removed, so there is no pipe cutting or consumers being cut-off.



LONG EXTRA SPECIAL



Schematic display and view of the damage



1



2



3



4

Installation of the joint and repairing failure in steps - LONG EXTRA SPECIAL DN500 - Zaječar





# LONG EXTRA ULTRA

LONG EXTRA ULTRA joints are upgraded version of LONG EXTRA SPECIAL joints, which are used for sanation of leakages at connections, alongside damage of the connecting joint, upon request that should be no water turning off. The main characteristic of LONG EXTRA ULTRA joint is the possibility of covering very large differences in pipe diameters of the connected pipes.

By installing LONG EXTRA ULTRA joint the existing connection joint is not removed, so there is no pipe cutting or consumers being cut-off.



LONG EXTRA ULTRA



Installation of the joint and repairing failure in steps - LONG EXTRA ULTRA DN600 - Novi Sad

# LINK

The main purpose of **LINK** joints is to stop leakage on the existing connection of pipes without pipe cutting and without consumers being cut-off. Thanks to perennial experience and feedback from our customers, we've been able to develop a large production program for these joints.

Due to a large number of materials from which connected pipes are made, and their connection possibilities, we manufacture following types of **LINK** joints (table on page 31):

- 1) **LINK-AC** - for stopping leakage on the existing connection of asbestos-cement pipes, when the connection is made by using *Vitlak*, *Dalma* or some similar joint;
- 2) **LINK-AC-ŽIBO** - for stopping leakage on the connection of asbestos-cement pipes when the connection is made by using *Gibault (Žibo)* joints;
- 3) **LINK-BETON** - for stopping leakage on the connection between pipes made from concrete, when sealing is made with lead or rubber gasket;
- 4) **LINK-LG-O** - for stopping leakage on the sleeve of cast iron pipe on which sealing is with lead;
- 5) **LINK-LG-ŽI** - for stopping leakage on the sleeve of cast iron pipe on which sealing is made by the "ŽI" connection;
- 6) **LINK-PES** - for stopping leakage at the connection between polyester pipes;
- 7) **LINK-PVC** - for stopping leakage at the connection between PVC pipes (sleeve);
- 8) **LINK-PE** - for stopping leakage at the connection between polyethylene pipes;
- 9) **LINK-LG-TYTON** - for stopping leakage on the sleeve of cast iron pipe on which sealing is made by the "TYTON" connection.



LINK joints

As the additional partition, with purpose of clear classification and easier finding of the desired product by our customers, **LINK** joints are divided in two groups:

- LINK WITH SINGLE SEALING;
- LINK WITH DOUBLE SEALING.

**LINK WITH SINGLE SEALING** joints are used with intention to stop leakages on the existing pipe connections without pipe cutting or consumers being cut-off, in those cases when pipes are made of PVC (**LINK-PVC** ⑦), concrete (**LINK-BETON** ③) and cast iron (depending on the way pipes are connected, there are several types: **LINK-LG-O** ④, **LINK-LG-ŽI** ⑤ and **LINK-LG-TYTON**).

**LINK WITH DOUBLE SEALING** joints are used for stopping leakages, without pipe cutting or consumers being cut-off, on connections of asbestos-cement pipes, over the existing joints of several types (**LINK-AC** ①), while in cases when the existing joint is of *Gibault (Žibo)* type, joints **LINK-AC-ŽIBO** ② are being used. In this group of **LINK** joints there are also **LINK-PES** ⑥ joints, which are being used for the same purpose of stopping leakages for polyester pipes, as well as **LINK-PE** joints, which are used for polyethylene pipes.

We manufacture **LINK-AC** and **LINK-AC-ŽIBO** joints in B, C and D type, depending on the class of asbestos-cement pipes for which they are intended (table on page 31).

LINK joints that we manufacture for asbestos-cement pipes are quite heavily represented in the overall number of these joints, with the further growth trend present, mainly because of the pipes' old age and ever growing tendency of leaking at connections.

Particularly large interest, when LINK joints for asbestos-cement pipes are concerned, is for the LINK-AC-ŽIBO joints. Using these joints, leakage on the connection over the existing Gibault (Žibo) joint is resolved, without removing the present joint, as well as without the pipe cutting or consumers being cut-off (which is a general trait of all LINK joints). Stated is done by the special way of manufacturing the joint, which enables easy and precise installation over the Gibault joint.



LINK-AC-ŽIBO

Another quite represented group of the LINK joints is the one dedicated for the cast iron pipes. Depending on the way pipes are connected, we offer LINK-LG-O joints (in cases when sealing is made by lead) and LINK-LG-ŽI (when sealing is made by the "ŽI" connection), while also successfully resolving cases when sealing is made by Tyton, as well as Union connection.



LINK-LG-O



LINK-LG-ŽI

Examples of solving leakages using LINK joints:



LINK-AC-ŽIBO



LINK-LG-O



LINK-PVC

LINK joints are being made, by default, up to the DN1000, and even further by request.

*Examples of installation of the joints (and repairing failure in steps):*



①



②



③

LINK-AC DN350 - Topola



①



②



LINK-BETON DN900  
Belgrade



①



②



③

LINK-AC-ŽIBO DN350 - Bela Crkva



LINK-AC-C DN200 - Rožaje

LINK-BETON DN600 - Aleksand.

LINK-AC-C DN350 - Bela Crkva



## MDK

MDK joint, made by ARMAS, is a classic detachable piece with three flanges, for easy and fast installation and removal of pipeline armature in waterworks systems.



MDK



## MDK-OPTIMA

MDK-OPTIMA joint is a facilitated version of MDK joint, delivered with all the needed bolt goods for installation, while not all of the bolts being in full length, which lowers installation time and allows bigger angular movement of the connected armature.

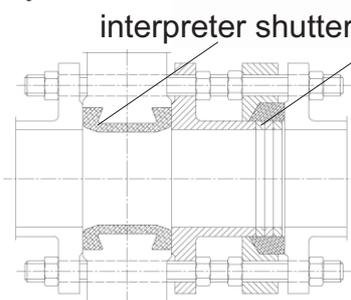


MDK-OPTIMA



## MDS-MZ

MDS-MZ joint is a detachable piece, with two flanges, which is used during the installation of interpreter shutters into the pipeline system.



interpreter shutter MDS-MZ



MDS-MZ joint and schematic of the connection



## MDS

Basic purpose of **MDS** joints is easy and simple installation and removal of pipeline armature in waterworks systems.

Detachable joints - **MDS**, made by **ARMAS**, are lighter from the usual detachable joints 30 to 40 percent, and have installation length lowered up to 50% when compared to the usual detachable joints, which all have a significant effect on the size decrease of the maintenance hole.

Beside already mentioned, other advantages of using **MDS** joints are:

- there are only two flanges (in contrast with other products which have three or four) so there are less nuts to tight, which affects the time of installing and removal of the pipeline armature;
- small installation length influence that **MDS** joint successfully connects flanges of armature and fitting with angular deviation up to 6°.



MDS



## MDS-OP

**MDS-OP** joints are made as a result of need to solve potential problems during the reconstruction of pipeline networks and changing shutters.

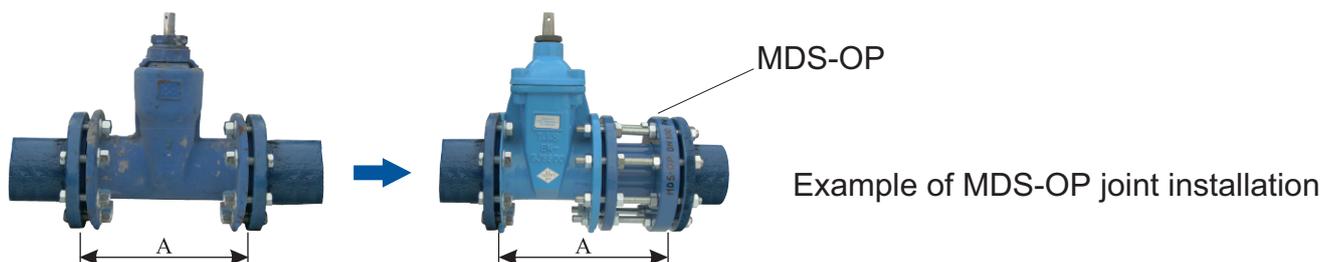
As it is well-known, old oval shutters, which are being replaced, have larger installation length in comparison to new flat ones, resulting that after replacing shutters there is empty space between free flange of the shutter and the flange of the F-F piece.

Because there were no conventional products for mentioned problem, we have made **MDS-OP** joints which, by installing, render replacing shutters fast and efficient.



MDS-OP

Installation lengths of the **MDS-OP** joints are calculated in such way that they cover exactly that space which originated from the removal of the old oval shutter, which significantly lowers the installation time and makes the whole process of changing shutters easier.



*Example of installation of the joint (and solving problem in steps):*



1



2



3

MDS-OP DN300 - Šid

## REDUCER FLANGE

**REDUCER FLANGE**, made by **ARMAS**, is the joint which is used as the substitution for FFR fitting, in cases when a lower installation length of the connecting piece is needed. Installation length of **REDUCER FLANGE** from our production program is 40 mm. With flanges we also deliver all the bolt goods needed for making the flange connection.

Considering that we manufacture these products for all combinations of diameters up to DN800, and due to such a large number of different products, these joints are made primarily by request.



REDUCER FLANGE

# U UNIVERSAL

**UNIVERSAL** joints are made for pipe failures and are universal, i.e. connect pipes made from same or different material. These joints are used for repairs of pipeline failures, when a pipe rupture is of such a length that pipe cutting and inserting a new piece of pipe is necessary.

**UNIVERSAL** joints are divided into two generations based on their constructive solution: **first (I)** and **second (II)**.

Regarding the **UNIVERSAL first** generation joints, we manufacture three types of these joints: **UNIVERSAL**, **UNIVERSAL-C** and **UNIVERSAL-D** (table on page 31).

It is important to mention that during the selection of diameter scope which is covered by each of these joints, special attention was made in order to make possible repairing failures on the asbestos-cement pipes, types C and D, by inserting pipe part made of steel, cast iron or plastic, in case that providing appropriate asbestos-cement pipe is not possible.



UNIVERSAL I generation

Examples of installation of the joints:



UNIVERSAL DN350 - Topola



UNIVERSAL DN300 - Knjaževac



UNIVERSAL DN600 - Krivaja



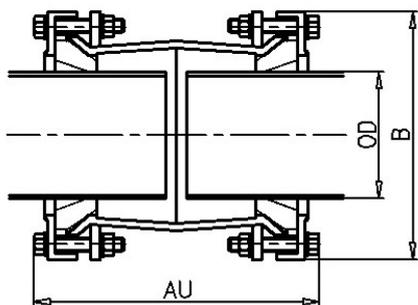
UNIVERSAL DN400 - Knjaževac

Primarily for installation in pipelines with nominal diameter over DN350, where universality is not a must and lower weight making installation easier.



UNIVERSAL II generation joints are upgraded version of first generation UNIVERSAL joints, with all the features and advantages of the first generation, while having larger installation lengths and a much wider diameter scope which is covered by one joint, as shown in the table below.

UNIVERSAL II gen. connect pipes with the same nominal diameter, regardless of the materials.



DN	OD range	Flange drilling	Bolts	Max AU	B
50	58 - 76	PN10/PN16	8 x M12	190	160
65	63 - 86	PN10/PN16	8 x M12	190	170
80	84 - 107	PN10/PN16	8 x M16	240	210
100	107 - 133	PN10/PN16	8 x M16	260	240
125	132 - 158	PN10/PN16	8 x M16	280	270
150	158 - 193	PN10/PN16	8 x M16	330	310
200 A	198 - 230	PN10 or PN16	8 x M16	340	350
200 B	218 - 256	PN10 or PN16	8 x M16	350	370
250	266 - 310	PN10 or PN16	12 x M16	370	430
300	315 - 356	PN10 or PN16	12 x M16	390	480



Primarily for installation in pipelines with nominal diameter from DN50 to DN300, where universality is very important, whereby one joint covers all pipe types, even the class D of asbest.-cement pipes.

UNIVERSAL II generation



As the additional example of innovative use of UNIVERSAL I generation for repairing failures we will suggest the case when there is a pipe breakage of a small length. In these types of cases repairing is done without inserting new pipe parts and by using only one joint.

As the variation of the previously stated case, we'll present example in which it is needed to fix the pipe cracking on the spot where Gibault (Žibo) joint was located, with the extremely limited space for installation. In this case as well, UNIVERSAL I generation joint successfully fixed the problem.



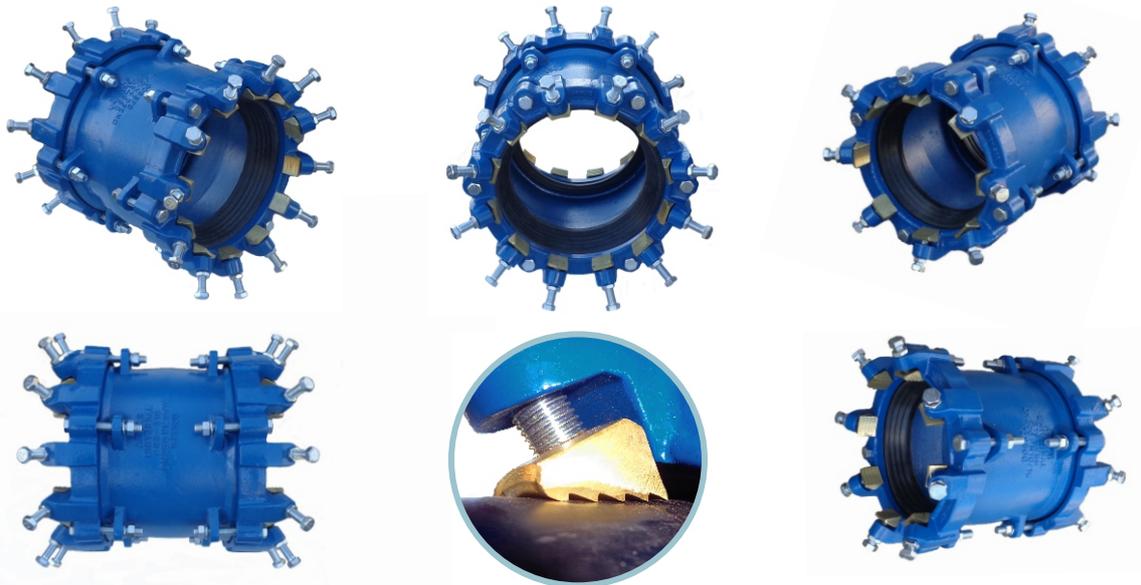


# UNIVERSAL FIX

**UNIVERSAL FIX** joints are based on the existing production program developed for **UNIVERSAL** joints with the distinction that, instead of usual flanges, there are special flanges with toothed metal fixers which are used for securing connection against the axial movement of the pipe. All installation ranges (table on page 25) and other general characteristics which are stated for the **UNIVERSAL** joints, are also valid for **UNIVERSAL FIX** joints.

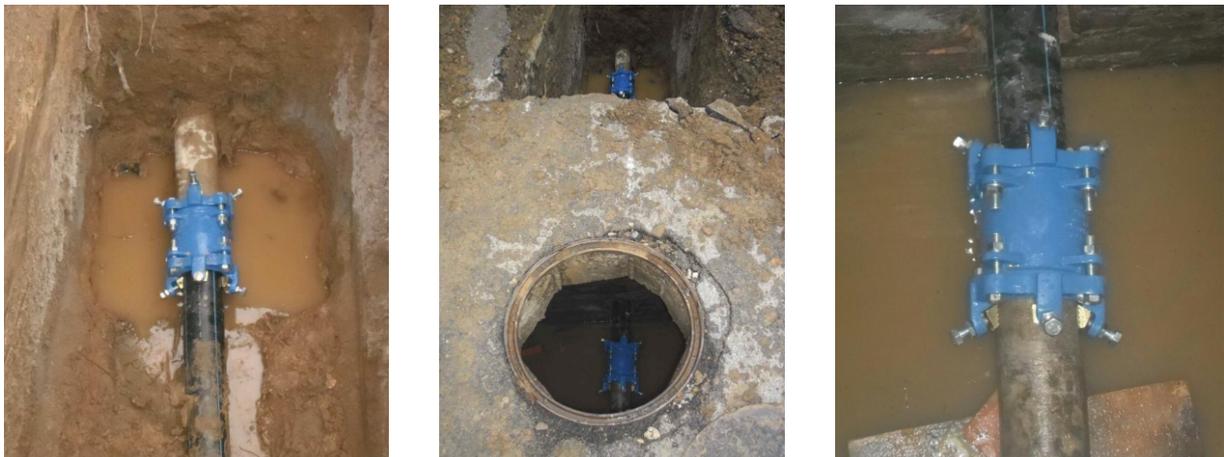
Two special and unique advantages of the constructive solution with separate fixers are:

- metal fixers are fasten on their own, thus making possible to have separate tightening of the rubber gasket, which makes the sealing. This allows to apply different amount of force for fixers and gasket, so the gasket can be tightened with a much larger force, in order to facilitate reliable sealing, while the fixers can be tightened with a smaller force so that pipes made from more fragile materials would not be damaged;
- each fixer has its own, rather large, tightening scope, which successfully deals with problems of pipe ovality, which is a common thing with pipes that have long been in exploitation.



UNIVERSAL FIX, with display of fixer in contact with the pipe

Example of installation of the joints:



UNIVERSAL FIX DN100 - Smederevska Palanka



## LONG UNIVERSAL

**LONG UNIVERSAL** joints are based on the existing program of **UNIVERSAL** joints, but they are used for repairing of pipe breakages with greater lengths. By installing one **LONG UNIVERSAL** joint, pipe breakage up to 600 mm is solved by default, and up to 2 m on request.

All other general characteristics and installation ranges (table on page 25) which are stated for the **UNIVERSAL** joints, are also valid for **LONG UNIVERSAL** joints.



LONG UNIVERSAL



## LONG UNIVERSAL FIX

**LONG UNIVERSAL FIX** joints represent the pinnacle of development based on the **UNIVERSAL** joints and their special branch - **LONG UNIVERSAL** joints.

They are used in cases when it is necessary to, apart from fixing the pipe's failure, secure the connection from axial movement. They are based on the existing program of **LONG UNIVERSAL** joints with the distinction that, instead of usual flanges, there are special flanges with toothed metal fixers which are used for securing connection against the axial movement of the pipe.

By installing one **LONG UNIVERSAL FIX** joint, pipe breakage up to 600 mm is solved by default, and up to 2 m on request.

All other general characteristics and installation ranges (table on page 25) which are stated for **UNIVERSAL** and **LONG UNIVERSAL** joints, are also valid for **LONG UNIVERSAL FIX** joints.



LONG UNIVERSAL FIX

# p ADJUSTABLE FLANGE GASKET

**ADJUSTABLE FLANGE GASKET - PPZ**, made by **ARMAS**, is specially designed and produced gasket for flange connection which covers axial shuffling from 0 to 8°.

Regulation of axial shuffling is done instantly and simply, by twisting one half of the gasket relative to the other half of the gasket.

Outstanding use of **PPZ** is especially evident in easy solving the problem of tilting hydrants during the installation, when it is often necessary to correct axial shuffling of the hydrant, which occurs because of imperfections in pipe positioning into the grid.

Another very useful application of **PPZ** is evident during the reconstructions of pipelines, where it is often present angular deviation between old pipelines, which are being reconstructed. By simply twisting one half of the **PPZ** to another, any angular deviation up to 8° is resolved instantly.



ADJUSTABLE FLANGE GASKET - PPZ

**ADJUSTABLE FLANGE GASKET - PPZ** is made from EPDM, as well as the all other gaskets made by **ARMAS**, according to the SRPS EN 681-1 standard, with needed firmness, resistance to ageing, and with all the applicable certificates, including the Health certificate.

**ADJUSTABLE FLANGE GASKET - PPZ** production scope is from DN80 to DN200 (including all interdimensions of nominal diameters), while for the larger pipes we offer a solution of the same purpose, but made from metal - **ADJUSTABLE FLANGE RING - PPP**.



ADJUSTABLE FLANGE GASKET - PPZ DN100

Examples of possible flange connections achieved by using PPZ  
and a display of covered angular deviations



# ADJUSTABLE FLANGE RING

**ADJUSTABLE FLANGE RING - PPP**, made by **ARMAS**, is specially designed and manufactured ring for flange connection which covers axial shuffling from 0 to 6°.

Regulation of axial shuffling is done instantly and simply, by twisting one half of the ring relative to the other half of the ring.

Exceptional use of **PPP** is especially evident in easy solving the common problem of armature tilting during the installation, when it's often necessary to correct the axial shuffling which occurs because of imperfections in pipe positioning into the grid. By simply twisting one half of the **PPP** to another, any angular deviation up to 6° is resolved instantly and simply.

Special attention was given in order to make operational use as simple as possible, because of the scale of products and their large weights, so there are special elements for product movement and its placing into the correct position, as well as for the adjustment of the needed angle.



ADJUSTABLE FLANGE RING - PPP

**ADJUSTABLE FLANGE RING - PPP** is made from, depending on the nominal diameter, either steel or cast iron, according to the all applicable standards, with every needed certificate.

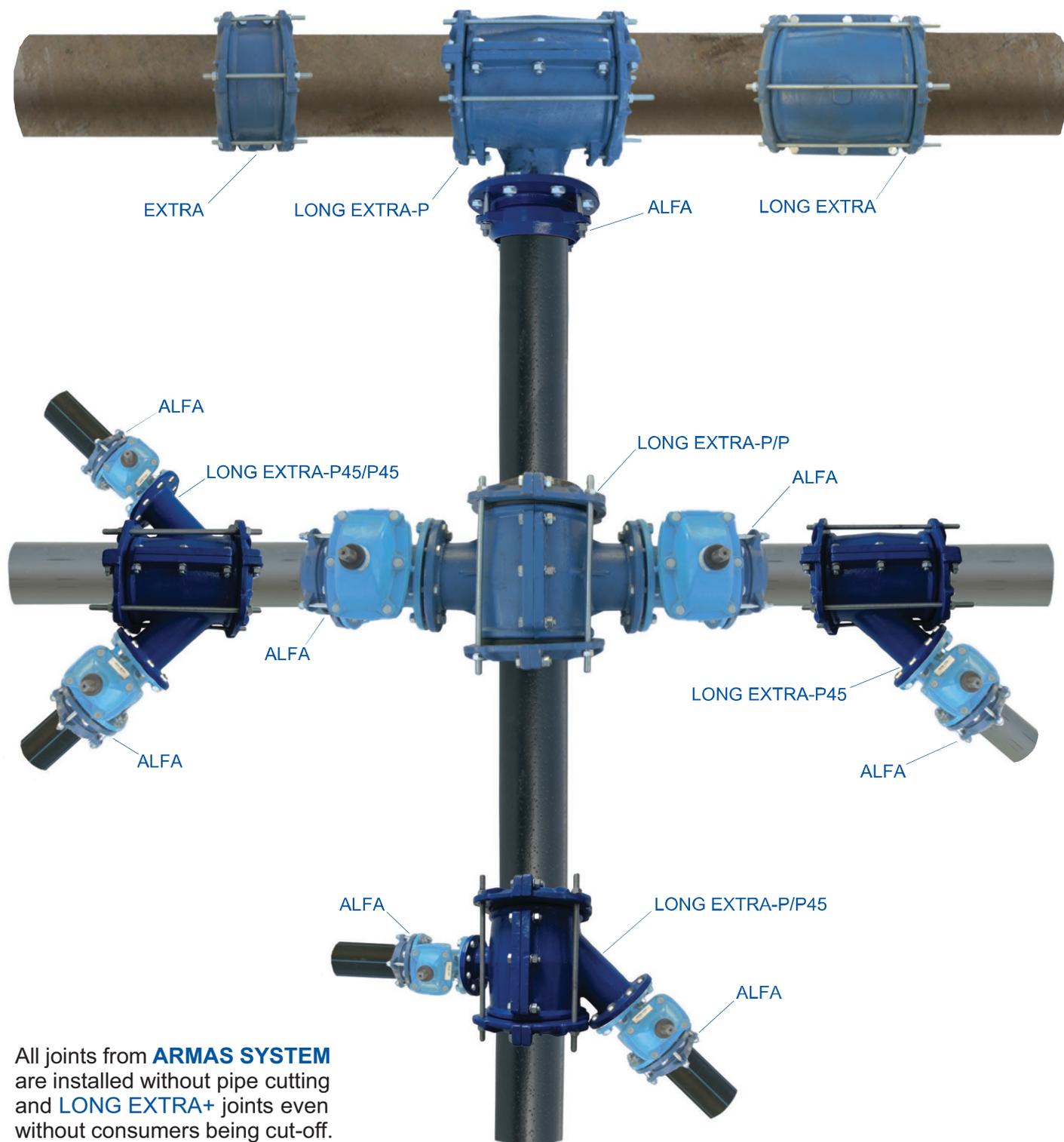
**ADJUSTABLE FLANGE RING - PPP** production scope is from DN250 to DN1000 (including all interdimensions of nominal diameters), while for the smaller pipes we offer a solution of the same purpose, but made from rubber - **ADJUSTABLE FLANGE GASKET - PPZ**.



ADJUSTABLE FLANGE RING - PPP DN250

Examples of possible flange connections achieved by using PPP and a display of covered angular deviations

# ARMAS SYSTEM



All joints from **ARMAS SYSTEM** are installed without pipe cutting and **LONG EXTRA+** joints even without consumers being cut-off.

## APPLICATION AREAS OF ARMAS JOINTS

ALFA (II gen.), UNIVERSAL (II gen.), ALFA FIX, UNIVERSAL FIX, LONG UNIVERSAL, LONG UNIVERSAL FIX

DN	PN	Application range
50	10/16	58 - 76
<b>65</b>	<b>10/16</b>	<b>63 - 86</b>
80	10/16	84 - 107
<b>100</b>	<b>10/16</b>	<b>107 - 133</b>
125	10/16	132 - 158
<b>150</b>	<b>10/16</b>	<b>158 - 193</b>
200A	10/16	198 - 230
<b>200B</b>	<b>10/16</b>	<b>218 - 256</b>
250	10/16	266 - 310
<b>300A</b>	<b>10/16</b>	<b>315 - 356</b>
300B	10/16	342 - 372
<b>350A</b>	<b>10/16</b>	<b>368 - 410</b>
350B	10/16	398 - 440

DN	PN	Application range
<b>400A</b>	<b>10/16</b>	<b>398 - 440</b>
400B	10/16	425 - 470
<b>450A</b>	<b>10/16</b>	<b>448 - 496</b>
450B	10/16	498 - 538
<b>500A</b>	<b>10/16</b>	<b>498 - 538</b>
500B	10/16	546 - 585
<b>600A</b>	<b>10/16</b>	<b>608 - 640</b>
600B	10/16	654 - 700
<b>700A</b>	<b>10/16</b>	<b>710 - 742</b>
700B	10/16	764 - 814
<b>800A</b>	<b>10/16</b>	<b>812 - 846</b>
800B	10/16	872 - 930

EXTRA, UNIVERSAL (I gen.)

DN	EXTRA UNIVERSAL	EXTRA-C UNIVERSAL-C	EXTRA-D UNIVERSAL-D
50	60 - 74	60 - 74	60 - 74
<b>65</b>	<b>75 - 88</b>	<b>75 - 88</b>	<b>75 - 88</b>
80	88 - 106	88 - 106	98 - 110
<b>100</b>	<b>110 - 128</b>	<b>110 - 128</b>	<b>128 - 142</b>
125	139 - 156	139 - 156	155 - 169
<b>150</b>	<b>159 - 176</b>	<b>168 - 185</b>	<b>185 - 202</b>
200	219 - 234	224 - 242	240 - 258

DN	EXTRA UNIVERSAL	EXTRA-C UNIVERSAL-C	EXTRA-D UNIVERSAL-D
<b>250</b>	<b>267 - 284</b>	<b>280 - 296</b>	<b>302 - 317</b>
300	315 - 330	342 - 357	360 - 375
<b>350</b>	<b>374 - 394</b>	<b>398 - 412</b>	<b>419 - 435</b>
400	398-412 / 419-435	456 - 470	480 - 498
<b>450</b>	<b>496 - 512</b>	<b>508 - 526</b>	<b>540 - 556</b>
500	496-512 / 523-540	568 - 582	600 - 616

## OUTER PIPE DIAMETERS

DN	ASBESTOS-CEMENT PIPES						LG (cast iron)	Č (steel)	PVC	PE
	B	B+	C	C+	D	D+				
<b>50</b>	68	(74)	68	(74)	68	(74)	66	60.3	63	63
<b>65</b>	78	(84)	78	(84)	78	(84)	82	76.1	75	75
<b>80</b>	98	(104)	98	(104)	102	(108)	98	88.9	90	90
<b>100</b>	118	(124)	120	(126)	128	(134)	118	108 114.3	110 125	110 125
<b>125</b>	143	(150)	147	(154)	155	(162)	144	133 139.7	140	140
<b>150</b>	168	(175)	176	(183)	186	(193)	170	159 168.3	160 180	160 180
<b>200</b>	224	(232)	232	(240)	248	(256)	222	219.1	200 225	200 225
<b>250</b>	276	(284)	286	(294)	302	(310)	274	267 273	250 280	250 280
<b>300</b>	330	(339)	342	(351)	360	(371)	326	323.9	315	315
<b>350</b>	384	(394)	398	(408)	420	(430)	378	355.6 368	355	355
<b>400</b>	438	(448)	456	(466)	480	(490)	429	406.4 419	400	400
<b>450</b>	492	(503)	512	(523)	540	(551)	480	457.2 480	450	450
<b>500</b>	546	(557)	568	(579)	600	(611)	532	508 530	500	500

+ - outer (crude) diameter of the appropriate asbestos-cement pipe (given that these dimensions are not given by standard, values in brackets are approximate, because they differ depending of the pipe producers)

Quality solutions, permanent certitude.

20  +  
years  
*...with you.*

*We celebrated our first 20 years during 2018.  
with hope that the next 20 will be even better  
and that we will always be there, with you, as  
the reliable support and confident associate.*



**A R M A S**

Kneza Miloša 42, 11450 Sopot, Belgrade, Serbia

Office: Starih orača 3, 11253 Sremčica, Belgrade

Telephone/fax: +381 11 252 22 33

Mobile phone: +381 63 371 774

web: [www.arms.co.rs](http://www.arms.co.rs)

e-mail: [office@arms.co.rs](mailto:office@arms.co.rs), [arms.beograd@gmail.com](mailto:arms.beograd@gmail.com)

