



COMPLEMENTARY PRODUCTS AND ASSEMBLY FITTINGS

CTG AC15 BR



INTRODUCTION

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TECHNICAL PUBLICATIONS

PNR manufactures a complete range of spray nozzles for industrial application, as well as products and systems specially designed for specific industries. Information about our Company and our product range is available through the following publications

PRODUCT RANGE	CTG TV10 BR
GENERAL PURPOSE SPRAY NOZZLES	CTG UG15 BR
AIR ASSISTED ATOMIZERS	CTG AZ15 BR
COMPLEMENTARY PRODUCTS AND ASSEMBLY FITTINGS	CTG AC15 BR
INDUSTRIAL TANK WASHING SYSTEMS	CTG LS15 BR
EVAPORATIVE COOLING LANCES	CTG LN15 BR
FIRE FIGHTING PRODUCTS	CTG FF15 BR
STEELWORK NOZZLES	CTG SW10 BR
SPRAYDRY NOZZLES	CTG SP10 BR

As a result of continuous product improvement, our documentation is regularly updated, and mailed to Customers whose name and address are registered into our Catalogue Mailing List. We shall gladly register your name, if you mail to the nearest PNR office or Distributor the form on page 29, duly filled with the required information.

NOTES

NOTES

Our products and their performances are continuously reconsidered and modified to keep up with the latest state of technology. We regret not to be able to give our Customers previous advice about these modifications: for this reason the data and product specifications given in this catalogue are always to be understood as being indicative, and do not firmly engage our Company. In case your application should imperatively require that one or more characteristics of one of our products, as given by this Catalogue, is strictly adhered to, we ask you to obtain a written confirmation about your requirements before sending your order.

All information contained into this catalogue, including product data, product codes, diagrams and photographs are the exclusive property of Flowtech Srl. It is forbidden to reproduce any part of this catalogue without having obtained a written permission from Flowtech Srl.

Dimensions in this catalogue are given in millimeters (mm).
All threads are manufactured according to the ISO 228 standards.
(European norms BS 2779 - DIN 259 - UNI 338).

Explanations about the abbreviations used in the catalogue are given at page 29.

All Trademarks are the property of their respective owners.

Please read our Warranty Conditions at page 29.

The majority of industrial processes based on the spraying of liquids require a large variety of supplementary operations such as drying by means of compressed air, mixing of fluids with Venturi eductors, filtering of the liquid to be sprayed.

Our experience in the field of fluid dynamics and the continuous cooperation with a large number of Customers on the major worldwide markets, enables us to propose a range of equipment which has not only been tested through many years of successful applications, but is continuously updated to the most modern technical levels and to the specific needs of our Clients.

ASSEMBLY ACCESSORIES

The choice of the most suitable nozzle or atomizer does not conclude the task for the designer of a plant. Requirements such as the facility of fitting, the correct orientation, the ease of maintenance, impose the use of accessories designed to optimize the total efficiency of the plant. Our experience, made out by the study of thousands of professional applications, where a correct fitting has shown remarkable results, enables us to offer a range of high quality accessories. If your problem is contending with a previously specified fitting, which is not ideal, a system that needs protection against clogging, or any other one of the problems that a designer has to face during the commissioning of a plant, you will find within the PNR range of accessories many suitable and professional solutions.

Those have been developed working for many years together with people like you.

PNR MATERIALS CODES

Many of the products shown in this Catalogue are available in different materials, and therefore their identification code is not complete, the two last digits in the code normally used to specify the material being left indetermined as XX.

In such cases please complete the code for your product with the final digits showing the required material.

The coding for the most popular materials are listed in the following. The complete list for the PNR material codes can be obtained requiring our publication 3BZ A01.

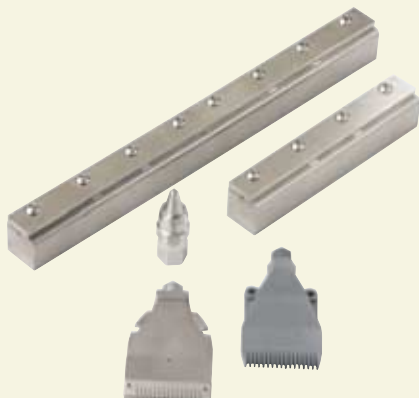
A1	Mild steel
A2	High speed steel
A8	Zinc coated steel
A9	Nickel coated steel
B1	AISI 303 stainless steel
B2	AISI 304 stainless steel
B21	AISI 304 L Stainless steel
B3	AISI 316 Stainless steel
B31	AISI 316 L Stainless steel
B8	AISI 309 Stainless steel
C2	Aisi 416 Stainless steel, hardened
D1	Polyvinylchloride (PVC)
D2	Polypropylene (PP)

D3	Polyamide (PA)
D5	Talcum filled Polypropylene
D6	Glassfibre reinforced PP
D7	High density polyethylene
D8	Polyvinylidene fluoride (PVDF)
E0	EPDM
E1	Polytetrafluorethylene (PTFE)
E2	PTFE (25% glassfibers)
E3	Acetalic resin (POM)
E7	Viton
E8	Synthetic rubber (NBR)
G1	Cast iron
H1	Titanium

L1	Monel 400
L2	Incolloy 825
L8	Hastelloy
P6	Acr. but. styrene (ABS)
P8	EPDM 40 Shore
T1	Brass
T2	Brass, chrome plated
T3	Copper
T5	Bronze
T8	Brass, nickel plated
T81	Brass, electroless nickel plated
V1	Aluminum
V7	Aluminum, electroless n. plated

COMPLEMENTARY PRODUCTS

AIR BLOWING NOZZLES



In many industrial processes some product has to be cleaned, dried, wiped-off, de-dusted, cooled or simply displaced to the other side of a conveyor. Compressed air is often used to perform such steps but it is relatively expensive and produces loud noise. Recent developments allow to reduce air consumption and noise level, while increasing the process efficiency. This is done by means of air nozzles with a streamlined outside surface, which allows a small jet of high pressure air to entrain a larger volume of surrounding air. The resulting air stream has a low velocity with a high mass: the impact efficiency is preserved, while sound level and air consumption drop dramatically.

CLEANING PRODUCTS



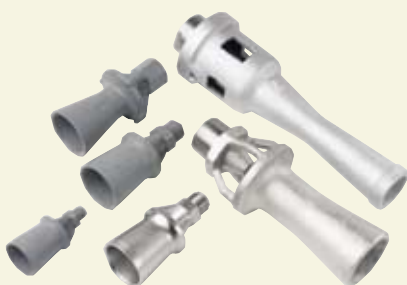
Pharmaceutical, chemical and food plants require a high level of cleanliness to be maintained at all times. In addition to our fine range of tankwashers we offer a line of products like our water saver gun, which can be fitted with a variety of nozzles and lances, and retractable hose holders in different models and equipped with food grade hoses to give those plants a perfect service and an orderly look. Our guns for fitting high pressure washing machines are also shown.

LINE FILTERS



A plugged nozzle in a plant can cause anything from an annoying cleaning job to severe problems. This is why a spraying system should always be protected by a well selected filter. We show in this catalogue a range of line filters, but will quote on request complete filter systems including self cleaning and bypass filter systems.

MIXING EDUCTORS



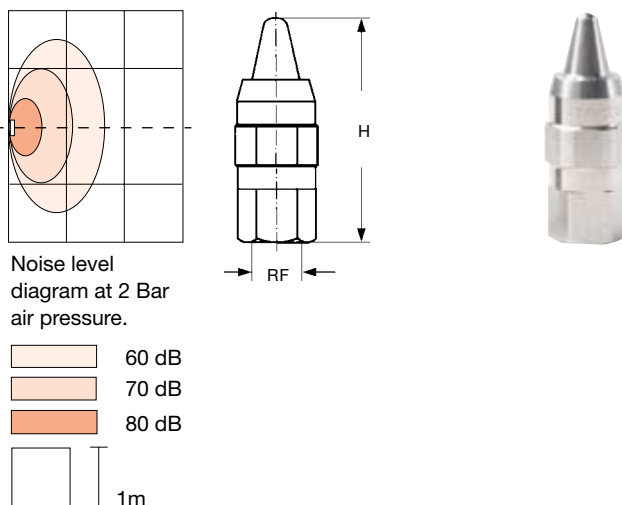
A water eductor can be sometimes a simple solution to a variety of problems. We offer a line of eductors for several applications like producing hot water from an existing steam line, heating liquids in reservoirs by means of steam, keeping solutions in a vat properly mixed and emptying tanks with a high pressure jet of water.

COMPLEMENTARY PRODUCTS

UEA 0010

AIR BLOWING NOZZLES

These air blowers are designed to direct a powerful air stream over a well defined area. Their carefully studied profile obtains a laminar pattern of air with very low turbulence, entraining the surrounding ambient air to increase the local impact of the air stream. Because of the low turbulence, loss of energy and sound waves emission are kept very low. The blower body is made out of lightweight electroless nickel plated aluminum or 316 stainless steel with a 316 stainless steel nipple in both cases for a strong thread connection. The table shows the air capacities as a function of the air pressure, while the graph gives the noise level as a function of the frontal and side distances from the nozzle for an air pressure value of 2 Bar.



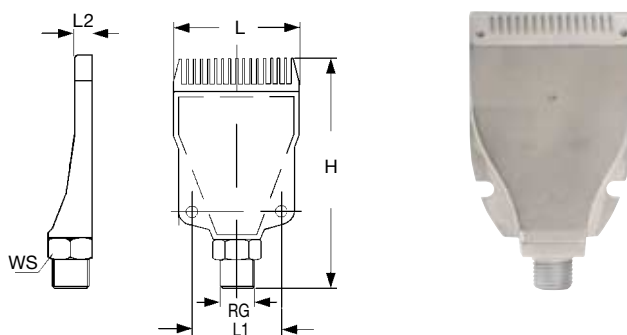
Materials

- Body V7 Aluminum, electroless nickel plated
- Nipple B3 AISI 316 Stainless steel

Code	RF	Air capacity (Nm ³ /h)						H
UEA 0010 xx	1/4"	15	20	25	31	35	55	
Pressure (bar)		2,0	3,0	4,0	5,0	6,0		

UEA 0525

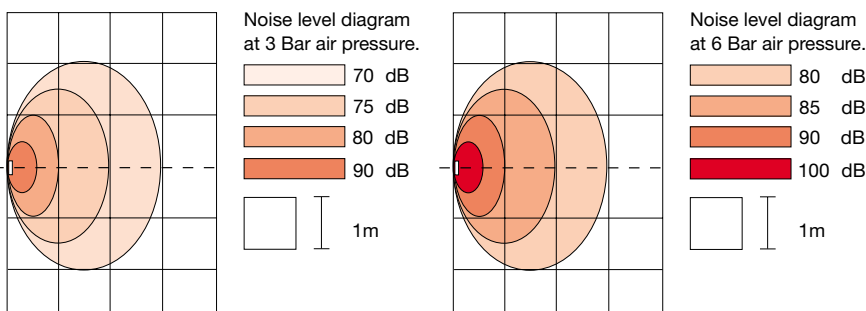
These air blowers have been designed for applications where a flat blade-shaped air stream, with high specific impact must cover a given width on a moving conveyor. Here again the outside profile obtains a strong entrainment action over the surrounding atmosphere, generating an high impact air blade, and avoiding the highly turbulent conditions of a free air jet with consequent loss of energy and high noise.



Materials

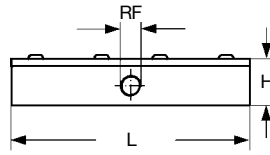
- E31 Polyacetalic resin (POM) (LT 80°C LP 5 Bar)
- V7 Aluminum, electroless nickel plated (LT 95°C LP 15 bar)

Code	RG	Air capacity (Nm ³ /h)						H	L	L1	L2	WS
UEA 0525 E31	1/4"	10	17	22	28	33	90	48	35	6,5	16	
UEA 0527 V7		10	17	22	28	33	90	48	35	6,5	16	
Pressure (bar)		1,0	2,0	3,0	4,0	5,0						



COMPLEMENTARY PRODUCTS

AIR BLOWING NOZZLES



UEB

UEB blowers produce a laminar jet of compressed air, with high efficiency and limited noise level. Their unique design provides an air stream exiting from a protected position, and changing direction because of adherence to a radiused profile thanks to the Coanda effect.

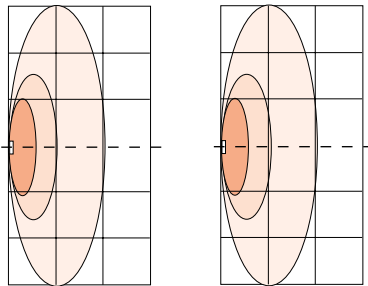
Their design allows for remarkable advantages:

- The exit orifice is not exposed to the risk of being damaged by impact.
- The bar can be built on any desired length, up to 600 mm.

Materials

Body V7 Electroless nickel plated aluminum
Upper Plate A9 Nickel plated steel

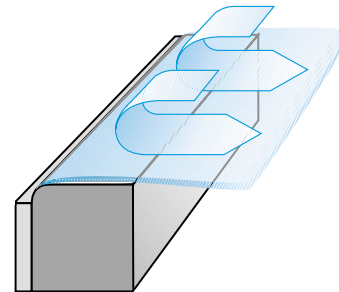
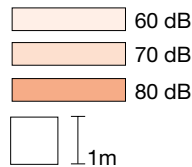
Code	RF	Air capacity (Nm ³ /h)										H	L	W
		IN		OUT		IN		OUT		IN				
UEB 0150 V1	1/4"	0,26	4,70	0,34	6,00	0,42	7,10	0,51	8,60	0,60	10,6	30	150	0,3
UEB 0300 V1	1/4"	0,52	9,40	0,68	12,0	0,84	14,2	1,02	17,2	1,20	21,2	30	300	0,7
UEB 0600 V1	1/4"	1,03	18,7	1,40	24,0	1,68	28,4	2,04	34,4	2,40	42,4	30	600	1,4



UEB 0150

UEB 0300

Noise level diagram at 2 Bar air pressure.



The table shows air capacity as a function of air pressure, while the graphs above show the noise level as a function of the front and side distances from the nozzle, while operated at an air pressure of 2 Bar. Since the air leaving the nozzle orifice drags along ambient air, the air blade produced by the nozzle (AIR OUT) has a larger flow rate than the feed air flow (AIR IN).

The air blade exiting through the side slot follows the radiused profile and leaves the body with an angle of 90° from the original direction, as shown by the drawing. This remarkable feature, based on the Coanda effect, makes it possible to have the air outlet orifice in a totally protected position, which is very interesting in those cases where products oscillating on a chain conveyor can damage conventional air blowers.

SAFETY NORMS

Safety norms determine the maximum sound level to which employees can be exposed in their working place. The noise level diagrams supplied show the noise level measured for one blower as a function of the distance from the blower itself. All our blowers meet OSHA noise requirements. Should your system consist of more than one blower, check that the resulting noise level complies with the requirement of the local applicable law.

COMPLEMENTARY PRODUCTS

UMV

The UMV series washgun has been designed primarily to avoid hot water waste, while assuring very comfortable operation conditions.

Its thick rubber lining not only effectively protects the operator hands from the discomfort of hot water temperature, but also assures an excellent protection in case the washgun is dropped or falls to the ground

since it avoids any damage to the tiles or the equipment.

The careful design, thought for the food industry, also includes a rubber quality resisting greases and usual detergents, plus a blue color chosen to give immediate visibility against a white/clear foreground.

The trigger is hold too with rubber, and can be hold in the open position by means of a lock ring.

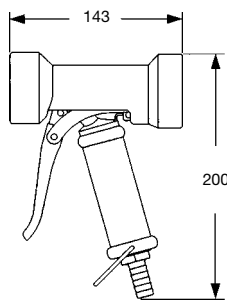
The spray pattern can be adjusted continuously between a closed straight jet to a wide angle spray, so that the proper spray pattern can be chosen for each single job.

Materials

Body	T2	Brass casting chrome plated
Lining	P8	EPDM
Stem	B3	Aisi 316 stainless steel
Trigger	B3	Aisi 316 stainless steel, rubber lined

Connection	13	mm	hose fitting
Weight	0.9	kg	
Max temperature	95	°C	
Max pressure	24	bar	

WATER GUNS



UMV 2210 T2

The versatility of this washgun is enhanced from the additional model UMV 2211 T8 , which can be fitted with additional lances.

The two different lance models are easily fitted to the gun body with a 1/2" male nipple. and offer the following choice of operation

1
Foaming machines and equipment foaming prior to washing

The foam lance comes with a quick connect female coupling, and a matching coupling must be fitted at the gun outlet.

2
General purpose 1/4" fem thread outlet, 1/4" male thread inlet. Available both with heat protection sleeve, or bare zinc-plated steel.

The general purpose lance needs a connection nipple 1/4" fem to 1/2" male to be fitted on the gun.

Please see the complete washgun and components codes below.

Complete guns

UMV 2210 T2	Standard, adjustable jet
UMV 220A T2	With foam lance
UMV 220B T2	With 1/4" fem outlet, bare lance
UMV 220C T2	With 1/4" fem outlet, heat protected lance

Components

UMV 2211 T2	Washgun with 1/2" female thread, without lance
XUM V001 B3	Foam lance
XUM V002 B3	Quick connect coupling for foam lance, 1/2" m
XUM V003 B3	Universal lance, 1/4" fem outlet, with heat protection
XUM V004 B3	Universal lance, 1/4" fem outlet, bare zinc-plated steel
XUM V005 T2	Chrome plated brass nipple (1/4" f / 1/2" m)



UMV 2211 T2 + XUM V002 B3 + XUM V001 B3 =

UMV 220A T2

+ XUM V005 T8 + XUM V004 B3 =

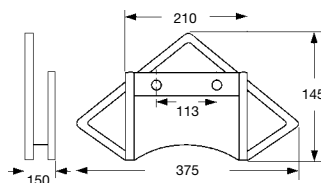
UMV 220B T2

+ XUM V005 T8 + XUM V003 B3 =

UMV 220C T2

COMPLEMENTARY PRODUCTS

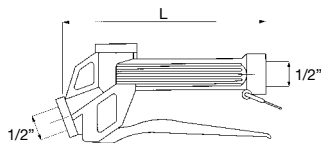
WATER GUNS



UMS 0037 E3



UMS 0038 E3



FLEXIBLE HOSE

This hose is for use with all types UMV hot water guns, since made with high quality EPDM to resist high temperatures, and shall assure long service life without wear. The hose is fitted at inlet and outlet ends with female quick coupling fittings, and can be supplied either with 1/2" or 3/4" size.

Maximum operation pressure 8 bar
Maximum operation temperature 160 °C

Material Hose E0 EPDM
Couplings B3 Aisi 316 stainless steel

Code	Size	LM
XUM P050 E0	1/2"	25
XUM P075 E0	3/4"	20

QUICK COUPLINGS

Supplied as standard together with XUM P- hoses, can be ordered separately with the following codes

Material B3 Aisi 316 stainless steel

Code	Type	Thread
XUM Q010 B3	Female coupling	1/2" male
XUM Q011 B3	Female coupling	1/2" female
XUM Q020 B3	Male adapter	1/2" male
XUM Q030 B3	Male adapter	1/2" female

HOSE STAND

Keeps the gun hose away from the ground and maintains better hygienic conditions, can be fitted to the wall by means of screws, through two 8 mm holes on the back side.

Material B3 Aisi 316 stainless steel

UMS

For washing or wetting small surfaces, this gun offers the convenience of sturdy internal parts in stainless steel, covered by a plastic shell for optimum shock resistance. The gun has a 1/2" female outlet thread for the nozzle of your choice to be mounted. Alternatively it can be fitted with a short plastic lance, with a 1/2" male thread outlet.

Maximum operation pressure 50 bar
Capacity 70 lpm

MATERIALS Inside parts B1 Aisi 303 stainless steel
Inside seal E7 Viton
Outside shel E3 Acetalic resin

COMPLEMENTARY PRODUCTS

UMW

HIGH PRESSURE GUNS

A range of high pressure washguns and lances which have been fully tested along many years of satisfactory use. The sturdy construction, the carefully designed outer shell providing protection for operator hands from high temperatures, and the possibility to lock the trigger in place for continuous service make these professional product well accepted on every market.

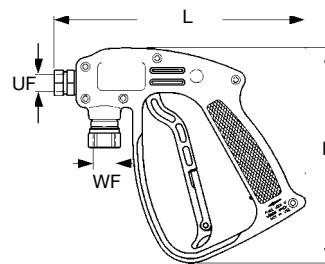
Materials

Body	D4	Nylon. Glassfiber reinforced
Inside parts	B1	Aisi 303 stainless steel
	C3	Aisi 440 stainless steel, hardened
	T1	Brass

UMW 0010 D4 is a basic washgun for general applications, offering optimum performance at a limited cost.

Nominal pressure	200	bar
Max working pressure	220	<bar
Max working temperature	160	°C
Capacity	30	lpm

Code	WF inch	UF inch	H mm	L mm	W kg
UMW 0010 D4	3/8"	1/4"	162	185	0,27

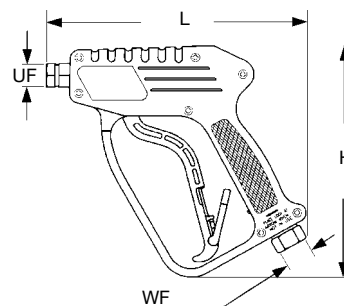


UMW 0010 D4

UMW 0020 D4 feature the same robust design with a higher pressure operating range and a larger capacity.

Nominal pressure	310	bar
Max working pressure	350	bar
Max working temperature	160	°C
Capacity	40	lpm
Weight	0.27	kg

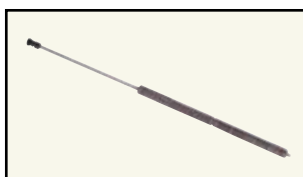
Code	WF inch	UF inch	H mm	L mm	W kg
UMW 0020 D4BS	3/8"	1/4"	183	202	0,78



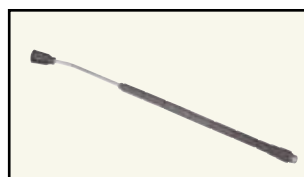
UMW 0020 D4

A range of different lances are available for assembly onto the UMW guns, please ask for detailed Data Sheets.

All lances have a 1/4" BSP male inlet and a 1/4" NPT female outlet, stainless steel pipe and temperature shield.



UMW 0030 B3
Basic model,
Data Sheet 9270



UMW 0040 B3
Lance with nozzle shield,
Data Sheet 9271



UMW 0050 B3
Lance with variable
angle nozzle,
Data Sheet N° 9272



UMW 0060 B3
Lance with rotating nozzle,
Data Sheet N° 9273

COMPLEMENTARY PRODUCTS

HOSE REELS UMU

These high quality hose reels have been expressly designed for those applications where stringent hygiene conditions need to be kept at all times, like pharmaceutical, chemical, cosmetic and food industries. They maintain in a proper place the flexible hose, and avoid it to collect dirt. Entirely manufactured in polished stainless steel, polished surface resists the build up of dust and dirt, will never be affected by corrosion or rust. Hose reels can be located on a wall or over a chariot for mobile operation. We offer in the following pages a complete range of reels and high quality food grade flexible hoses, for low and high pressure operation.



MANUAL REWIND REELS

UMU A/B basic type of hose reel, with manual rewinding, fits perfectly the need for light cleaning operation or for assembly onto a mobile cleaning cart. Sviwel base can be quoted on request.

Material B2 Aisi 304 Stainless steel

Code	LP (bar)	E	U	DI (mm)	MF	LF (m)	W (kg)	S (mm)	P (mm)	H (mm)	Sviwel
UMU AD10 B2SB	20	1"	1"	20	1"	10	12	19	50	46	on request
UMU AD20 B2SB					1"	20	13	24	50	46	
UMU BA20 B2SB	200	1/2"	1/2"	12	3/8"	20	9	20	40	35	
UMU BB15 B2SB					1/2"	15					
UMU BA50 B2SB					3/8"	50	12	19	50	46	
UMU BB35 B2SB					1/2"	35					
UMU BA70 B2SB					3/8"	70	13	24	50	46	
UMU BB50 B2SB					1/2"	50					

COMPLEMENTARY PRODUCTS

UMU

HOSE REELS - AUTO REWIND

UMU E/F, spring powered hose reel, are very useful in those applications where frequent cleaning operations are performed, it saves time and increases the operator efficiency. The hose can be easily pulled out of the reel for the required length, and will maintain his position while washing is performed: a further short pull will cause the hose to rewind into the reel.

A swivel base can applied to each reel in this model range, see SV column in the table beside for the right swivel.



Code	LP (bar)	E	U	DI (mm)	MF	LF (m)	W (kg)	P (mm)	H (mm)	S (mm)	Sviwel Code
UMU EC15 B2SB UMU ED08 B2SB	20	1"	1"	20	3/4" 1"	15 8	21 21	53	45	30	XUM U020 B2
UMU EC20 B2SB UMU ED20 B2SB	20	1"	1"	20	3/4" 1"	20 20	24 24	53	45	46	XUM U022 B2
UMU FB15 B2SB UMU FB20 B2SB UMU FB20 B2SB	200	1"	1"	12	1/2" 1/2" 1/2"	15 20 20	13 18 21	55 55 55	45 45 45	24 26 30	XUM U015 B2 XUM U020 B2 XUM U020 B2

AUTO REWIND & ORIENTABLE OUTLET

UMU L/M reels offer the advantage of an orientable hose outlet, in addition to all the remarkable characteristics of the UMU E/F types. It is then possible to pull the hose in any given direction, which increases the ease of operation and the flexibility of the installation.



Code	LP (bar)	E	U	DI (mm)	MF	LF (m)	W (kg)	P (mm)	H (mm)	S (mm)	Sviwel Code
UMU LC15 B2SB UMU LD08 B2SB	20	1"	1"	20 20	3/4" 1"	15 08	21	53	45	30	XUM U020 B2
UMU LC20 B2SB UMU LD20 B2SB	20	1"	1"	20 20	3/4" 1"	20 20	24	53	45	46	XUM U022 B2
UMU MD20 B2SB UMU MD20 B2SB	200	1/2"	1/2"	12 12	1/2"	15 20	13 18	55 55	45 45	24 26	XUM U015 B2 XUM U020 B2

COMPLEMENTARY PRODUCTS

EXTRA CAPACITY REELS



UMU

UMU Q/R reels have been specially designed to hold a noticeable length of flexible hose, up to 40 meters can be handled by a specially designed double spring which assures reliable rewinding action.

Recommended for applications where long tunnels or machines have to be cleaned from one single feed point.

Code	LP (bar)	E	U	DI (mm)	MF	LF (m)	W (kg)	P (mm)	H (mm)	S (mm)	Sviwel Code
UMU LC30 B2SB	20	1"	1"	20	3/4"	30	36	53	54	52	
UMU LC30 B2SB				20	1"	25					
UMU MB25 B2SB	200	1/2"	1/2"	12	1/2"	25	26	55	54	36	XUM U030 B2
UMU MA40 B2SB				12	3/8"	40	36				
UMU MB40 B2SB				12	1/2"	40	36	55	45	46	

FLEXIBLE HOSES

To complement our line of reels we make available the following range of flexible hoses, with different temperature and pressure operation values. All hoses are made out of food grade NBR, resist animal and vegetable greases, and offer an high gloss outside surface to avoid adhesion from dirt. Please note that codes below refer to 1 meter length.

Hose code	LP (bar)	LT °C	3/8"	1/2"	3/4"	1"
XUM R050 E8A	10	95		•		
XUM R075 E8A					•	
XUM R100 E8A						
XUM R050 E8B	20	100		•		
XUM R075 E8B					•	
XUM R100 E8B						
XUM R038 E8C	210	155	•			
XUM R050 E8C				•		
XUM R038 E8D	400	155	•			
XUM R050 E8D				•		

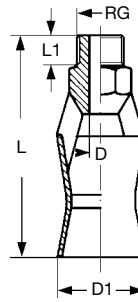
COMPLEMENTARY PRODUCTS

UPB

These eductors are the ideal devices for the continuous blending of liquids or solutions contained in tanks, when settling of heavier components and local variations of density must be avoided. Stainless steel types are often used for steam heating processes in water tanks. The distinctive design incorporates the efficiency of the Venturi profile into a body with high structural strength, where the eductor is cast or moulded in one piece offering sturdy thick sections. This minimizes the danger of the eductor being damaged in course of maintenance work.

Materials B31 AISI 316L Stainless steel
D6 Polypropylene glassfibre reinforced

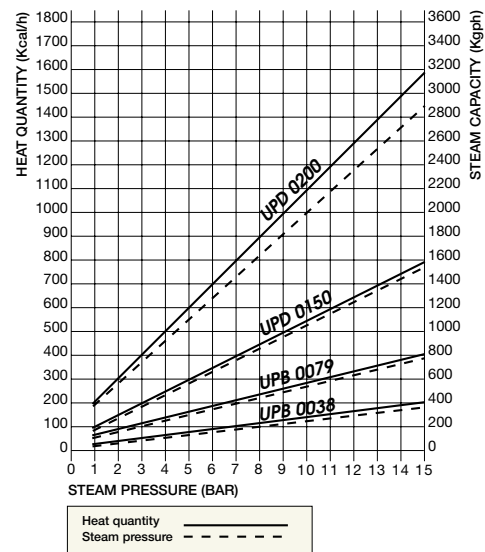
MIXING EDUCTORS



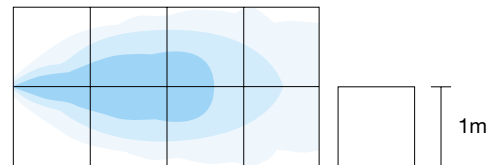
Code	RG (mm)	D	Capacity (lpm)					D1	L	L1	WS
UPB 0038 B31	3/8"	7,0	34	48	59	68	76	45	98	15	22
UPB 0040 D6											
UPB 0075 B31	3/4"	10	63	89	109	126	141	60	132	20	30
UPB 0079 D6											

Pressure (bar) 1,0 2,0 3,0 4,0 5,0

The table above shows the eductor water capacity as a function of the pressure differential between the inlet pressure and the outlet back pressure. See the diagram beside for steam heating, full lines show Heat quantity, dashed lines steam capacity, as a function of feed pressure.



The graph on the left shows the effective range of type UPB 0078, as tested in a water tank at 50 cm depth. Under normal working conditions, for feed pressure values between 2 and 4 Bar, eductors with a total capacity equal to 20% of the liquid volume to be agitate, has proven to be adequate for most applications. Detailed suggestions about eductors layout inside tanks are shown in Data Sheet 9140.

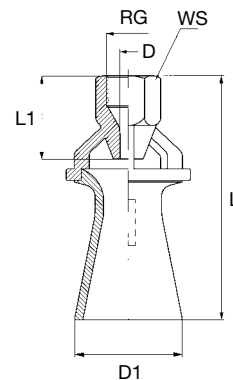


UPD

UPD series eductors have similar characteristics and applications as the eductors belonging to the UPB series, with the only difference of a female thread connection. This design offers the advantage of easy removal, should the eductor be broken by accident, as it often happens while the plant is serviced.

Materials B31 AISI 316L Stainless steel
D6 Polypropylene

MIXING EDUCTORS

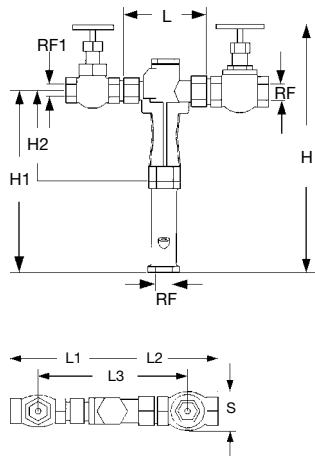


Code	RG (mm)	D	Capacity (lpm)					D1	L	L1	WS
UPD 0075 XX	3/4"	7,0	63	89	109	126	141	75	147	30	34
UPD 0150 XX	1 1/2"	15	141	199	243	280	313	108	228	45	60
UPD 0200 XX	2"	22	279	395	483	558	622	120	295	50	70

Pressure (bar) 1,0 2,0 3,0 4,0 5,0

COMPLEMENTARY PRODUCTS

SMALL STEAM HEATERS



UPL

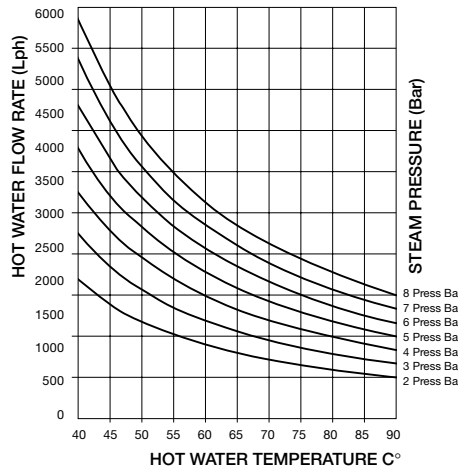
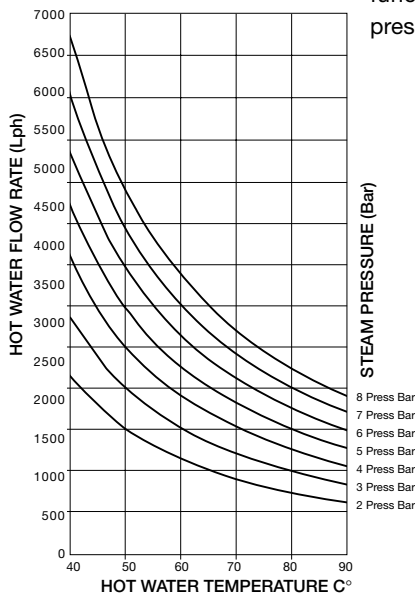
UPL steam operated water heaters offer a simple, cheap and noiseless solution to the problem of producing hot water in factories. Simply connecting the mixer inlet to cold water and steam lines assures a ready supply of hot sanitary water for your cleaning processes. All the steam energy is given to the water, the heating processes is extremely efficient, assures a low cost per liter and no stock is needed: just make the quantity you need. Two inlet valves allow for adjusting the temperature value, that can be read on the thermometer in front of the mixer.

- Max operation temperature 80 °C
- Max steam pressure 10 Bar
- Materials Body and valves T5 Bronze
- Bracket A8 Zinc coated steel

Code	RF	RF1
UPL 0100 T5	1" GAS	3/4" GAS
UPL 0125 T5	1 1/4" GAS	1" GAS

The tables beside give capacity of hot water (Lph) for inlet water temperature of 15°C, as a function of steam pressure.

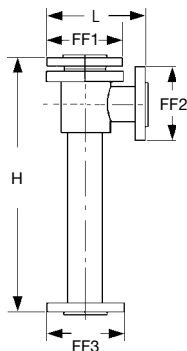
Code	RFW	RFS	H	H1	H2	L	L1	L2	S
UPL 0100 T5	3/4"	1"	375	270	136	120	145	146	60
UPL 0125 T5	1"	1 1/4"	430	310	164	158	174	160	67



Steam inlet
 Globe valve PN 25, with metal sealing seat.
 Max temperature 180 °C
 Max working pressure 10 Bar

Water inlet
 Globe valve PN 16, with metal sealing or PTFE seat.

PUMP EJECTORS



UPM pump ejectors are static pumps with no moving parts, using the kinetic energy of a high pressure motive fluid (steam or water) to entrain a liquid, mix the two and discharge the mixture against a back pressure. Typical applications: - Draining flooded areas - Emptying tanks and sumps - Proportioning operations

Code	H (mm)	I (mm)	FF1 (ND)	FF2 (ND)	FF3 (ND)	Capacity (lph)
UPM 0020 xx	230	90	20	20	25	2000
UPM 0040 xx	340	90	25	25	32	4000
UPM 0070 xx	420	100	32	32	40	7000
UPM 0130 xx	480	100	40	40	50	13000
UPM 0250 xx	540	120	50	50	65	25000
UPM 0400 xx	620	130	65	65	80	40000

- Materials Body A1 Carbon Steel
- B31 AISI 316L Stainless Steel
- Nozzle B31 AISI 316 Stainless Steel

COMPLEMENTARY PRODUCTS

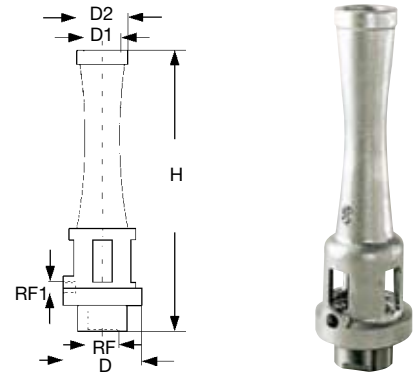
UPN

LARGE STEAM HEATERS

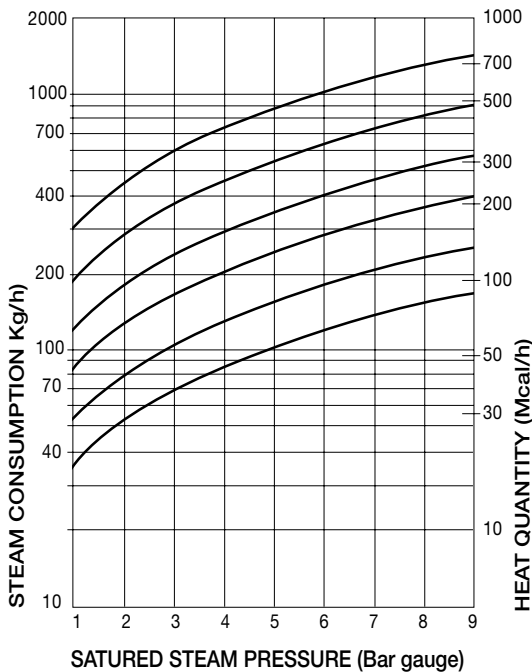
UPN steam jet liquid heater is a device designed to heat considerable liquid volumes contained into large tanks, without originating noise and vibrations and wherever dilution by condensate is allowed.

Continuous and efficient heating of liquids is performed through steam condensing, with the additional advantage of the mixing action that assures uniform heating over the entire tank volume.

Materials	Body	B2	AISI 304 Stainless steel
		G1	Cast iron
Nozzle	B2	T5	Bronze (on request)
		B2	AISI 304 Stainless steel
		T5	Bronze (on request)

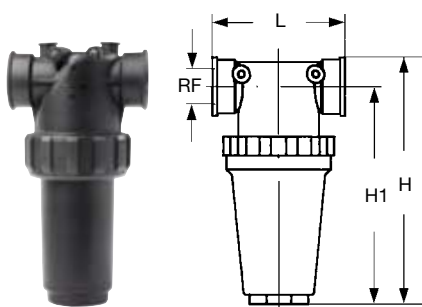


Code	RF	RF1	D1	D2	H	D
UPN 0050 xx	1/2"	1/4"	20	39	188	58
UPN 0075 xx	3/4"	1/4"	27	45	247	66
UPN 0100 xx	1"	1/4"	35	52	292	80
UPN 0125 xx	1 1/4"	1/4"	40	59	330	97
UPN 0150 xx	1 1/2"	1/4"	46	67	380	102
UPN 0200 xx	2"	3/8"	60	86	445	127



COMPLEMENTARY PRODUCTS

PLASTIC BODY FILTERS VEH



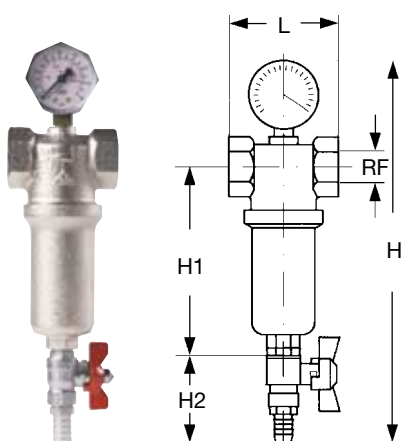
The line filters of the VEH series, are a rational and economical solution for such applications where severe operating conditions are not expected. Entirely made out of polypropylene, with two brass bushings (1/4" female thread), for wall mounting. The threaded coupling between the bowl and the head allows for quick cleaning or replacement of the filter cartridge.

Max operation pressure **14 Bar**
 Materials **Body D2 Polypropylene**
Seal P8 EPDM

Code	RF	H (mm)	H1 (mm)	L (mm)	Q (lpm)	Cartridge	C	M
VEH 0050 D21	1/2"	136	118	99	140	XVE H050 D21	B	32
VEH 0051 D21						XVE H051 D21	U	50
VEH 0052 D21						XVE H052 D21	R	100
VEH 0075 D21	3/4"	136	118	99	140	XVE H050 D21	B	32
VEH 0076 D21						XVE H051 D21	U	50
VEH 0077 D21						XVE H052 D21	R	100
VEH 0100 D21	1"	165	143	107	140	XVE H05A D21	B	32
VEH 0101 D21						XVE H05B D21	U	50
VEH 0102 D21						XVE H05C D21	R	100
VEH 0125 D21	1 1/4"	279	239	146	250	XVE H060 D21	B	32
VEH 0126 D21						XVE H061 D21	U	50
VEH 0127 D21						XVE H062 D21	R	100
VEH 0150 D21	1 1/2"	279	239	146	250	XVE H060 D21	B	32
VEH 0151 D21						XVE H061 D21	U	50
VEH 0152 D21						XVE H062 D21	R	100

Colour code: **B = White**
U = Blue
R = Red

BRASS BODY FILTERS VEL



VEL type filters are ideal to be assembled into small systems where ease of cleaning is required. When necessary, simply open the valve at the filter bottom and the dirt contained inside the cartridge is easily expelled. The disassembly of the filter bowl is to be foreseen only to wash the cartridge loose of larger dirt particles. A manometer on the filter head shows the outlet pressure, hence pressure drop through the filter.

Max operation pressure **LP 16 Bar**
 Max operating temperature **LT 100° C**
 Materials **Body T8 Nickel plated Brass**
Cartridge B3 AISI 316 Stainless steel

Code	RF	H (mm)	H1 (mm)	L (mm)	Q (lpm)	Cartridge	M
VEL 0039 T8	3/8"	285	133	50	14	XVE L171 B2	80
VEL 0051 T8	1/2"	288	136	56	25		
VEL 0076 T8	3/4"	288	132	67	38	XVE L172 B2	
VEL 0101 T8	1"	295	137	80	72		
VEL 0126 T8	1 1/4"	343	169	92	118	XVE L200 B2	
VEL 0151 T8	1 1/2"	356	179	110	178	XVE L201 B2	
VEL 0201 T8	2"	362	179	110	213		

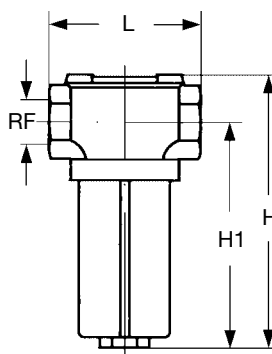
COMPLEMENTARY PRODUCTS

VEM

LARGE CAPACITY FILTERS

VEM FILTERS have been designed for high efficiency and ease of maintenance under hard conditions. The bowl houses large size cartridges, to extend periods of operation and reduce maintenance time., and it is connected to the body by thread for quick removal without tools. Finally, a plug at the bottom of the bowl allows for fitting a ball valve to bleed the filter.

Materials Body & bowl V1 Aluminum casting
 Cartridge B2 AISI 304 Stainless Steel



Code	RF	H (mm)	H1 (mm)	L (mm)	PM (lpm)	Q	Cartridge	M	W
VEM 0050 V1 VEM 0051 V1	1/2"	210	152	130	40	70	XVE M075 B2 XVE M076 B2	60 80	0,9
VEM 0075 V1 VEM 0076 V1	3/4"	210	152	130	40	95	XVE M075 B2 XVE M076 B2	60 80	
VEM 0100 V1 VEM 0101 V1	1"	210	152	105	40	140	XVE M075 B2 XVE M076 B2	60 80	
VEM 0125 V1 VEM 0126 V1	1 1/4"	270	210	140	30	280	XVE M150 B2 XVE M151 B2	60 80	1,6
VEM 0150 V1 VEM 0151 V1	1 1/2"	270	210	140	30	315	XVE M150 B2 XVE M151 B2	60 80	
VEM 0200 V1 VEM 0201 V1 VEM 0202 V1	2"	400	318	200	10	750	XVE M300 B2 XVE M301 B2 XVE M302 B2	30 60 80	5,6
VEM 0250 V1 VEM 0251 V1 VEM 0252 V1	2 1/2"	400	318	200	10	810	XVE M300 B2 XVE M301 B2 XVE M302 B2	30 60 80	
VEM 0300 V1 VEM 0301 V1 VEM 0302 T8	3"	400	318	200	10	1050	XVE M300 B2 XVE M301 B2 XVE M302 B2	30 60 80	

ASSEMBLY ACCESSORIES

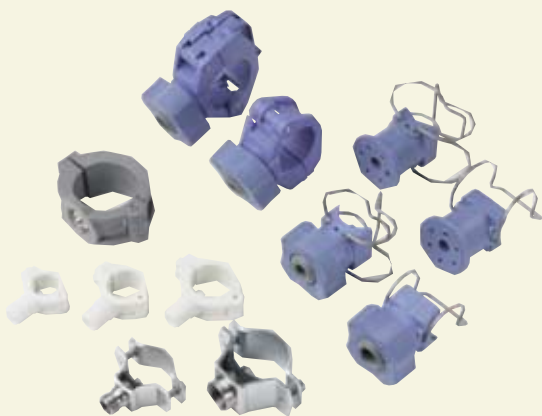
NIPPLES, LOCKNUTS AND INTERNAL FILTERS



We offer a range of nipples and locknuts to suit most customers requirements, in different materials. Made out of high quality materials and under stringent tolerances, they assure a precise and reliable assembly for the nozzles in your system. Small size filters assure individual protection against clogging to single low capacity nozzles.

Page 17

PIPE CLAMPS



The widest range in the world of clamps engineered for professional applications.

Give your own system a modern and efficient design, and be sure our products will make it easily cleaned and maintained for a long time at its top performance.

Page 21

PIPE JOINTS AND SWIVELS



Metal swivel joints to suit any need for your spraying systems, and modern quick coupling joints made out of high technology plastic materials, designed for the need of today's industry.

Page 26

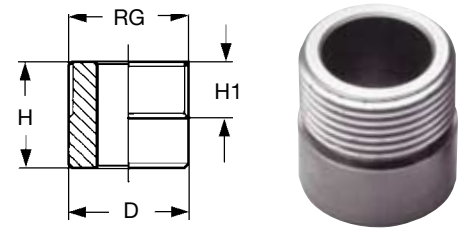
ACCESSORIES

ZAA

ZAA NIPPLES

ZAA welding nipples allow the assembly of the GX nozzle tips onto pipes and spray manifolds. The 3/8" nipple accepts filters of the series VEA, VEC, VED for protection of single nozzle tips. Welding nipples can be supplied radiused on the welding side, the radius values are listed as RA in the code table.

Materials B1 AISI 303 Stainless steel
B31 AISI 316 Stainless steel



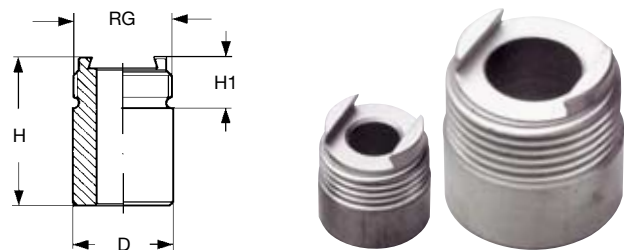
Code	RG	H (mm)	H1 (mm)	D (mm)	D1 (mm)	RA (mm)	W (gr)
ZAA 1738 xx	3/8"	18	10	17	11,5	—	20
ZAA 2775 xx	3/4"	27	15	27	18,0	—	61
ZAA 1738 xxA	3/8"	18	10	17	11,5	10	20
ZAA 1738 xxB						13	
ZAA 1738 xxC						16	
ZAA 1738 xxD						20	
ZAA 1738 xxE						25	

ZAC

ZAC NIPPLES

ZAC welding nipples are manufactured with a dovetail end, to accept GY type dovetail nozzle tips and keep them orientated in the desired position.

Materials B1 AISI 303 Stainless steel
B31 AISI 316L Stainless steel



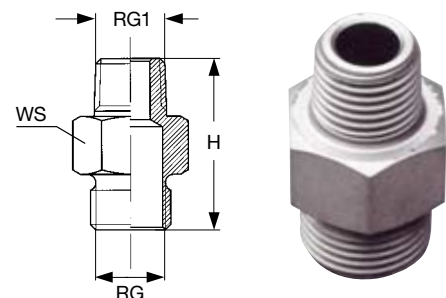
Code	RG	H (mm)	H1 (mm)	D (mm)	D1 (mm)	W (gr)
ZAC 1738 xx	3/8"	18,0	10,0	17	7,5	20
ZAC 2775 xx	3/4"	27,5	14,0	27	12	61
ZAC 4225 xx	1 1/4"	40,0	21,0	42	20	280

ZLA

ZLA NIPPLES

ZLA double nipples accept VEA, VEC, VED filters for protection of single nozzle tips.

Materials B31 Aisi 316L Stainless steel
T1 Brass

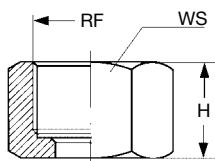


Code	RG	RG1	H (mm)	WS (mm)	W (gr)
ZLA 2538 xx	3/8"	1/4"	32,5	19	25
ZLA 3838 xx	3/8"	3/8"	35,0	19	25
ZLA 7575 xx	3/4"	3/4"	34,0	32	90

ZLA 7575 Nipples have both threads BSP straight

ACCESSORIES

VAA LOCKNUTS



VAA locknuts have been designed for assembly onto our Z series nipples. They are available from stock in brass and stainless steel, and can be delivered on request out of any machineable material.

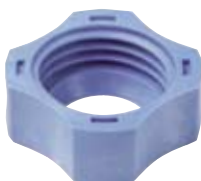
Materials

- B1 AISI 303 Stainless steel
- B3 AISI 316 Stainless steel
- T1 Brass

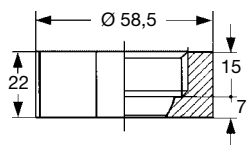
Code	RF	D (Mm)	H (mm)	WS (mm)
VAA 0038 xx	3/8"	12,7	12	22
VAA 0075 xx	3/4"	20,5	16	32
VAA 0125 xx	1 1/4"	32,2	27	50

VAA 0038 D6 is a 3/8" moulded model, for use with our Z type nipples and ZPB type clamps, and made out of high quality polypropylene reinforced with chemically bonded glassfibers

VAB LOCKNUTS



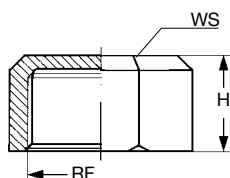
VAB 0125 D6B



VAB 0125 D6B locknut has been designed for use on ZPF, ZPL and ZPQ type pipe clamps. Its special thread and the outside shape allow to easily assemble the cap by hand, without the use of any tools, making maintenance operations easier and faster. The high quality plastic material has a very low water absorption, a high dimensional stability under temperature and high tensile strength, so as to avoid any risk of cap coming loose even under vibrations. Max working temperature LT 80 °C.

Material D6 PP chemically bonded fiberglass

VAE BLIND CAPS



VAE blind cap has been designed for the purpose of blanking off the ends of spray manifolds, in surface pre-treatment plants. It is moulded with the same high quality thermoplastic material as used for all products in the surface pre-treatment product line.

Material D6 PP chemically bonded fiberglass

Code	RF	H (mm)	WS (mm)
VAE 0100 D6	1"	25	42
VAE 0125 D6	1 1/4"	32	52
VAE 0150 D6	1 1/2"	32	60

VE

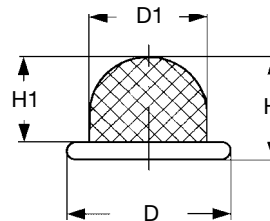
INTERNAL FILTERS

VE filters provide an individual protection for each single nozzle tip. We recommend to use individual filters on low capacity nozzles and nozzle tips, where outlet orifices and internal passages have limited dimensions and plugging is therefore likely to happen, in addition to a main filter on the supply line of the system. Based on the type of nozzle, we offer different filter styles, as shown in this page.

HAT SHAPE FILTERS

Use with low flow nozzle tips, operated at low pressure.

Materials Collar T3 Copper
Wire net B3 AISI 316 Stainless steel

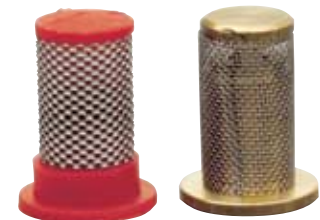
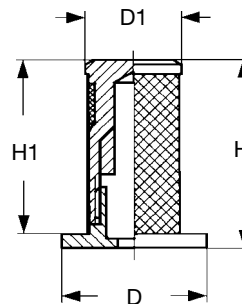


VEA

CARTRIDGE FILTERS

Used with nozzle tips, VEC type filters offer an important cartridge surface as compared to the orifice cross section, and assure a long service time before maintenance is required.

Materials Body B1 AISI 303 Stainless steel
T1 Brass
D3 Nylon
Wire net B2 Stainless steel AISI 304



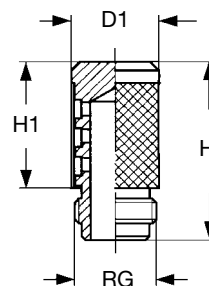
VEC

THREADED FILTER VEF

Threaded filters can be used with low-flow 1/4" JB, RX and RZ nozzles.

Thread made to 3/8" UNF standard.

Materials Body B1 Aisi 303 Stainless steel
B3 Aisi 316 stainless steel
T1 Brass
Wire net B2 Aisi 304 Stainless Steel



VEF

Code	D (mm)	D1 (mm)	RG	H (mm)	H1 (mm)	M (mesh)
VEA 0138 T9	14,5	9,5	—	8,5	7,3	100
VEA 0238 T9						75
VEA 0338 T9						50
VEC 0138 xx	15	10	—	20	18,5	100
VEC 0238 xx						75
VEC 0338 xx						50
VEF 0138 xx	—	10,2	3/8*	21	15	100
VEF 0238 xx						75
VEF 0338 xx						50

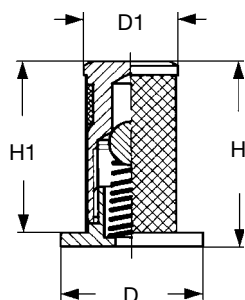
* VEF connection thread 3/8" UNF

ACCESSORIES

INTERNAL FILTERS



VED



VED

VED filters contain a one way ball valve to avoid dripping when spray is turned off, and can be fitted with springs having different opening pressures.

Their code must be completed replacing the Y with the code shown in the table below.

Materials	Body	B1	AISI 303 Stainless steel
		T1	Brass
		D3	Nylon
	Wire net	B2	Stainless steel AISI 304

Y Code	Opening pressure (bar)
B	0,7
C	1,4
D	2,8

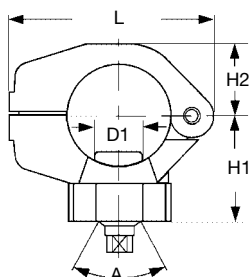
Code	D (mm)	D1 (mm)	RG	H (mm)	H1 (mm)	M (mesh)
VED 0138 xxY	15	10	—	20	18,5	100
VED 0238 xxY						75
VED 0338 xxY						50

VE series filters can be made out of different materials, standard parts in stock as per table below.

Material code	VEC	VED	VEF
B1/Aisi 303	•	•	•
B3/Aisi 316			•
D3/Nylon	•	•	
T1/Brass	•	•	•

ACCESSORIES

ZPF CLAMPS



ZPF clamps have been introduced by Pnr in 1981 and have revolutionized the concept of modern surface pre-treatment plants. They make it possible to fit a broad range of nozzles, with jets oriented in the most convenient way, by just drilling one hole, without threading or welding. Checking and replacing of the nozzles is quick, and easily performed without the need of any tools. ZPF can be completed with swivel body moulded nozzles, or with female thread balls to accept any metal nozzle with threads between 1/8" and 1/2".

Materials	Body	D6	Polypropylene glassfibre reinforced
	Insert	B3	AISI 316 Stainless steel
	Pin		
	Screw		

ZPF clamps are available with three different nipple sizes, to fit pipe holes with diameters of 14.3, 17, 20 mm

Code	PS	PD (mm)	D1 (mm)	H1 (mm)	L (mm)	A (deg)
ZPF A125 D6	11/4"	41/43	20,0	43	84	40
ZPF B125 D6			17,0			
ZPF C125 D6			14,0			
ZPF A150 D6	11/2"	46/49	20,0	47	90	40
ZPF B150 D6			17,0			
ZPF C150 D6			17,0			

Several balls, as shown on the diagram beside, are available to allow assembling stainless any type of stainless steel nozzles with different thread sizes.

See the table beside for the different codes.

A blind ball ZBA 0000 D5 completes the ball range.

Code	RF BSP	RF NPT
ZBA A025 D5	1/4"	
ZBA B025 D5		1/4"
ZBA A038 D5	3/8"	
ZBA B038 D5		3/8"
ZBA A050 D5	1/2"	

The popular choice for nozzles to be assembled onto ZPF clamps is the moulded flat jet nozzles in the HGQ series, where the different capacities are distinguished by means of the color code.

Code	Capacity (lpm)					Color
HGQ 1390 D5	1,7	2,0	2,4	2,9	3,3	Black
HGQ 1770 D5	3,2	3,8	4,5	5,5	6,4	Violet
HGQ 1980 D5	4,0	4,7	5,6	6,9	8,0	Brown
HGQ 2117 D5	4,6	5,5	6,5	8,0	9,2	Yellow
HGQ 2135 D5	5,5	6,5	7,8	9,5	11,0	Grey
HGQ 2155 D5	6,2	7,4	8,8	10,8	12,5	Red
HGQ 2195 D5	7,8	9,2	11,0	13,5	15,6	Green
HGQ 2230 D5	9,5	11,3	13,5	16,5	19,1	Blue
HGQ 2270 D5	10,9	12,8	15,4	18,8	21,7	Skyblue
HGQ 2337 D5	13,9	16,4	19,6	24,0	27,7	White
HGQ 2410 D5	18,8	22,2	26,5	32,5	37,5	Pink

Pressure (bar) 0.5 0.7 1.0 1.5 2.0

ZPG

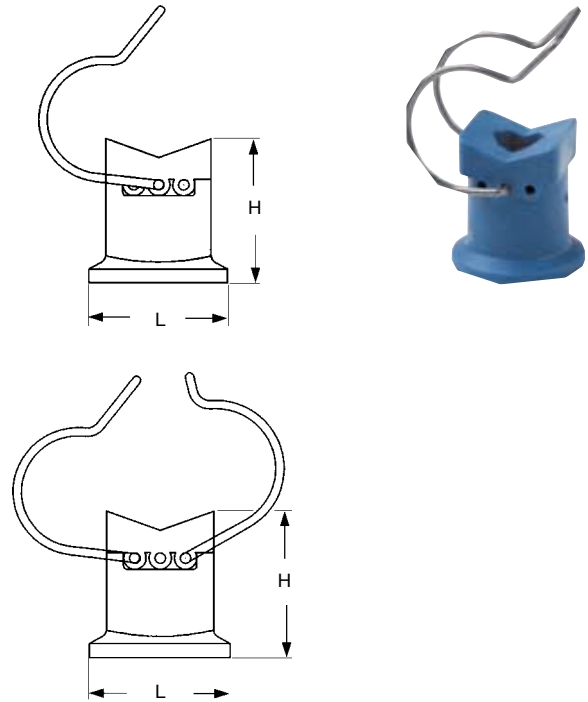
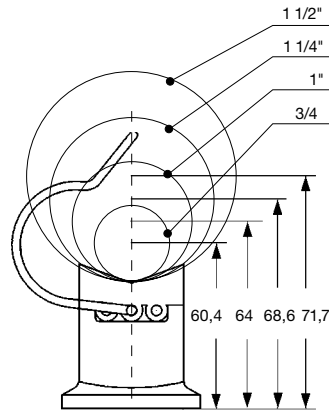
PIPE HOLDERS

ZPG type pipe holders offer an easy and convenient solution for holding spray manifolds to the tunnel wall in surface treatment plants, while making maintenance operation faster. Their high quality springs accomodate both steel and plastic pipes, with sizes ranging from 3/4" to 1 1/2". Each ZPG holder can be supplied equipped with two springs, for heavy manifolds or systems with strong vibrations. The table below shows the product codes for one and two springs holders.

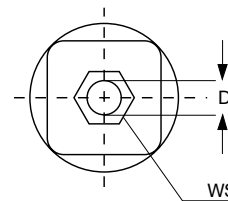
Materials Body D6 Polypropylene glassfibre reinforced
Springs N1 AISI 302 Stainless Steel, heat treated

Code		PS	D (mm)	H (mm)	L (mm)	WS (mm)
One spring	Two springs					
ZPG 1075 D6	ZPG 2075 D6	3/4"	11	53	50	18
ZPG 1100 D6	ZPG 2100 D6	1"				
ZPG 1125 D6	ZPG 2125 D6	1 1/4"				
ZPG 1150 D6	ZPG 2150 D6	1 1/2"				

The drawing shows the distance of the pipe center axis from the wall for different pipe sizes assembled onto the pipe holder.



ZPG body design has provision for being secured to the wall by means of one M10 bolt with hexagon head 17 mm.



ZPH

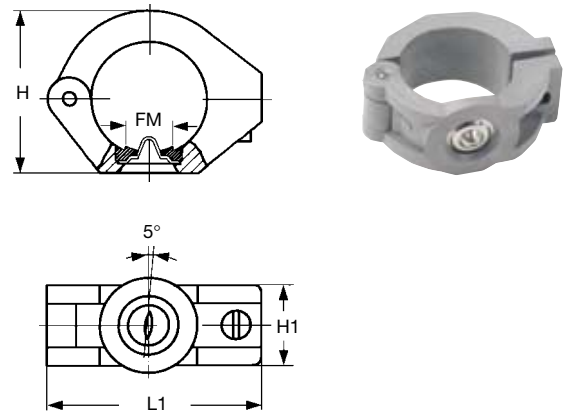
FILTERPRESS CLAMP

ZPH clamps have been specially designed to allow mounting the clog resistant disc nozzles of the series GE in a fast and economical way. GE nozzles are the best solution for washing band filter cloths used in mud drying filter presses. The clamp design lets the back part of the nozzle protrude inside the pipe, in order to enable the cleaning of the orifice by means of a rotating stainless steel brush.

Max working pressure 7 Bar
Fitting dimensions Outer pipe diameter 50 mm
Inner pipe diameter 47 mm
FM seal diameter 19 mm

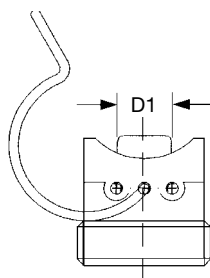
Materials Clamp D6 Polypropylene glassfibre reinforced
Pin, bolt B3 Aisi 316 stainless steel

Code	PD (mm)	D1 (mm)	H (mm)	H1 (mm)	L1 (mm)
ZPH 0150 D6	50	19	70	34	91



ACCESSORIES

PIPE CLAMPS



ZPL

ZPL clamps are an economical alternative fitting for orientation of nozzles in light duty plants. They use the same range of accessories (screw caps, nozzles spheres, threaded spheres and o-rings) as the ZPF clamps, which allows for maximum flexibility with a reduced stock. The assembly is fitted onto the pipe quickly and without tools, locking the profiled spring around the stand pipe.

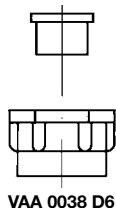
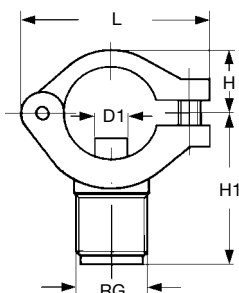
O-Ring Code XZP 5128 E8
 Locknut Code VAB 0125 D6

Materials Body D6 Polypropylene glassfibre reinforced
 Spring N1 AISI 302 Stainless steel, heat treated

For larger pipe sizes, or for systems with strong vibrations, we recommend the double spring ZPN clamp type to be used

Code		PS (mm)	PD (mm)	D1 (mm)
One spring	Two springs			
ZPL 0100 D6	ZPN 0100 D6	1"	34/32	14,0
ZPL A125 D6	ZPN A125 D6	11/4"	43/41	20,0
ZPL B125 D6	ZPN B125 D6			17,0
ZPL C125 D6	ZPN C125 D6			14,0
ZPL A150 D6	ZPN A150 D6	11/2"	49/46	20,0
ZPL B150 D6	ZPN B150 D6			17,0
ZPL C150 D6	ZPN C150 D6			14,0

PIPE CLAMPS



ZPB

ZPB clamps offer a quick and simple method of fixing a series of nozzle tips onto steel pipes. Only one hole is required, no threading or welding, and a 3/8" male nipple is readily available. Our high quality polypropylene has high values for tensile strength at high temperatures, and low values of water absorption, assuring a strong hold in operation. A retaining locknut moulded with the same material fits the nipple of all ZPB clamps.

Max working temperature 90° C.

Materials Body D6 Polypropylene glassfibre reinforced
 Metal parts B2 AISI 304 Stainless steel

Code	RG	PS (mm)	PD (mm)	D1 (mm)	H (mm)	H1 (mm)	L (mm)
ZPB 0050 D6	3/8"	1/2"	20/22	7,6	16,0	36	44
ZPB 0075 D6		3/4"	25/27	7,6	17,5	39	51
ZPB 0100 D6		1"	32/34	10,8	21,0	46	61

ZPM

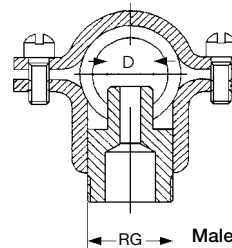
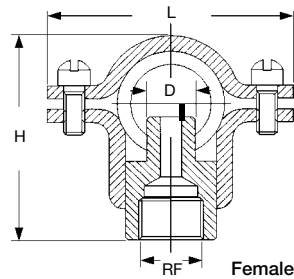
PIPE CLAMPS

ZPM clamp is composed by two contoured pressings, a nipple and a gasket, the assembly being secured on the pipe by means of two screws.

The completely metallic design allows for higher working pressures than those possible with plastic moulded clamps. Nipples of different materials and thread sizes are available. For a precise product identification please complete the clamp code as shown in the table below.

Max working temperature 80°C
Max working pressure 17 Bar

Materials	Body	B2	AISI 304 Stainless steel
		A8	Zinc coated steel
Screws	B2	AISI 304 Stainless steel	
	Nipple	B1	AISI 303 Stainless steel
Gasket	T1	Brass	
	E8	Synthetic rubber	



Code	PS	RF/RG	LP (bar)	LQ (lpm)	D1 (mm)	H (mm)	L (mm)
ZPM 0050 xxYW	1/2"	1/8"	17	11	7	40	49
ZPM 0050 xxYW		1/4"					
ZPM 0050 xxYW		3/8"				48	
ZPM 0075 xxYW	3/4"	1/8"	17	11	7	45	58
ZPM 0075 xxYW		1/4"					
ZPM 0075 xxYW		3/8"				53	
ZPM 0100 xxYW	1"	1/8"	17	11	7	45	65
ZPM 0100 xxYW		1/4"					
ZPM 0100 xxYW		3/8"				53	
ZPM 0125 xxYW	1 1/4"	1/4"	9	45	18	68	71
ZPM 0125 xxYW		3/8"					
ZPM 0125 xxYW		1/2"					
ZPM 0150 xxYW	1 1/2"	1/4"	9	45	18	72	90
ZPM 0150 xxYW		3/8"					
ZPM 0150 xxYW		1/2"					
ZPM 0200 xxYW	2"	1/4"	9	45	18	85	100
ZPM 0200 xxYW		3/8"					
ZPM 0200 xxYW		1/2"					
ZPM 0250 xxYW	2 1/2"	1/4"	9	45	18	110	118
ZPM 0250 xxYW		3/8"					
ZPM 0250 xxYW		1/2"					

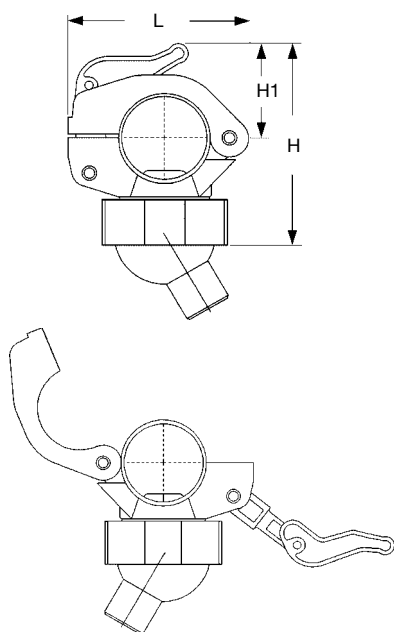
CODE COMPLEMENTS

Replace xx and YW in the above codes as shown below

XX	For clamp material	Y	For nipple thread	W	For nipple material
A8	Zinc coated steel	A	1/8" fem	A	Brass
B2	Aisi 302	B	1/4" fem	B	Aisi 303
		C	3/8" fem	C	Aisi 316
		D	1/2" fem		
		E	3/8" mal		

ACCESSORIES

PIPE CLAMPS



ZPQ

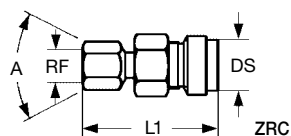
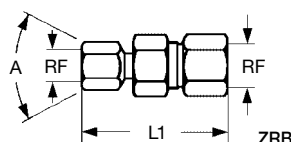
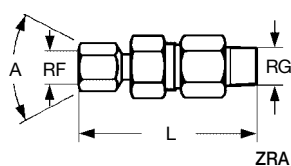
ZPQ clamps are the most modern and the highest quality product developed for application in surface treatment plants : they reduce significantly the time and labour required for maintenance disassembling and cleaning operations. A patented cam and lever system quickly fits the clamp onto the pipe without tools. The clamp design, where body cam and lever are linked by stainless steel pins, avoids any risk of loosing single parts during assembly and disassembly. To avoid any leakage and consequent dirt buildup on the swivel ball, a unique soft seal is provided on the ball seat. ZPQ clamps use the same locknut and ball nozzles as the other Pnr clamps.

Materials	Plastic parts	D6	Polypropylene glassfibre reinforced
	Pins	B3	AISI 316 Stainless Steel
	O-ring	E7	Viton
	Seal	D2	Soft polypropylene
Max working pressure	LP		4 Bar (tested at 20°C)
Max working temperature	LT		0°C

As easy as 1, 2, 3...just wrap the clamp around the pipe and lock the lever...you're done!

Code	PS	PD (mm)	D1 (mm)	H (mm)	H1 (mm)	L (mm)
ZPQ A125 D6	11/4"	42/43	20,0	93	41	84
ZPQ B125 D6			17,0			
ZPQ A150 D6	11/2"	48/49	20,0	96	44	95
ZPQ B150 D6			17,0			

SWIVEL JOINTS



ZRA

ZRA swivel joints fit a wide range of nozzles, while maintaining a rational piping lay-out. Fitting and adjustment are easily performed, tightening the hexagonal screw cap. A female thread accepts the nozzle, and a male threaded connection fits onto the feed line.

Maximum pressure	LP	9 Bar
Materials	B3	Aisi 316 stainless steel
	T1	Brass

This swivel joint type can also be supplied with a female pipe connection (code ZRB) or a weld on connection (code ZRC), with the same range shown in the ZRZ table beside.

Code	RG	RF	L (mm)	A (deg)
ZRA 1212 xx	1/8"	1/8"	38	50
ZRA 2525 xx	1/4"	1/4"	57	
ZRA 2626 xx	1/4"	1/4"	67	60
ZRA 3826 xx	3/8"	1/4"	67	
ZRA 3838 xx	3/8"	3/8"	70	
ZRA 5050 xx	1/2"	1/2"	74	40
ZRA 7575 xx	3/4"	3/4"	92	

ACCESSORIES

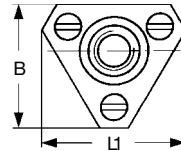
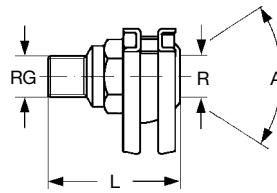
ZRP

ZRP swivel joints are a very popular type, where adjustment is carried out by locking the sphere between the two flanges. A female thread accepts the nozzle, and a male threaded connection fits onto the feed line.

Materials B2 Aisi 304 stainless steel
 T1 Brass

Code	RG	RF	L (mm)	B (mm)	L1 (mm)	A (deg)
ZRP 1212 xx	1/8"	1/8"	30	40	35	50
ZRP 2512 xx	1/4"	1/8"	32		35	
ZRP 2525 xx	1/4"	1/4"	40	50	45	60
ZRP 2538 xx	1/4"	3/8"	40			
ZRP 3825 xx	3/8"	1/4"	40			
ZRP 3838 xx	3/8"	3/8"	40			
ZRP 5038 xx	1/2"	3/8"	40	75	65	40
ZRP 5050 xx	1/2"	1/2"	62			

SWIVEL JOINTS



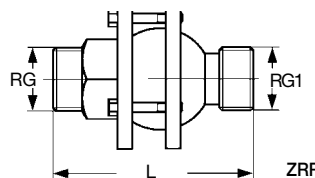
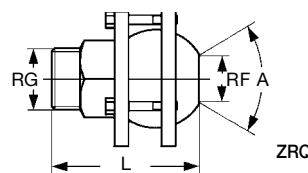
ZRQ

ZRQ swivel joints are designed to allow jet orientation for large nozzles. Fitting and adjustment are carried out by locking the clamping flange. These joints have a male thread connection to feed pipe, a male or female connection for the nozzle.

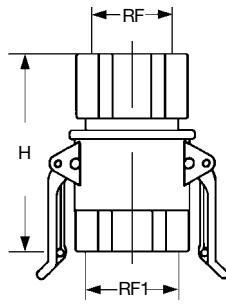
Materials B3 AISI 316 Stainless steel
 T1 Brass

Code	RG	RG1	RF	L (mm)	D (mm)	A (deg)
ZRQ 8080 xx	1"	—	1"	89	92	40
ZRQ 8282 xx	1 1/4"	—	1 1/4"	130		
ZRQ 8482 xx	1 1/2"	—	1 1/4"	133		
ZRR 8282 xx	1 1/4"	1 1/4"	—	130	92	40
ZRR 8284 xx	1 1/2"	1 1/4"	—	130		
ZRR 8484 xx	1 1/2"	1 1/2"	—	130		
ZRR 8686 xx	2"	1 1/2"	—	203	158	40
ZRR 8888 xx	2 1/2"	2 1/2"	—	229		

SWIVEL JOINTS



QUICK COUPLING JOINTS



Materials	Body	D6	Polypropylene, chemically bonded glass fibers
		B3	Aisi 316 stainless steel
Levers		B31	Aisi 316L stainless, cast
		B35	Aisi 316 stainless, sintered
Seal		D8	PVDF, Polyvynilidene fluoride
		E0	EPDM
		E7	Viton

ZSA

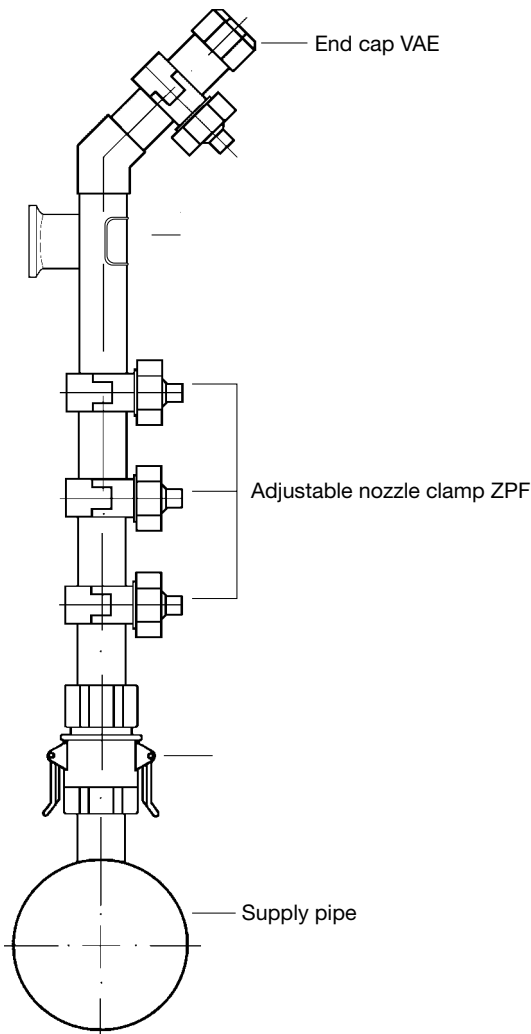
ZSA quick coupling joints are becoming more and more popular solution for connection of pipes and risers in surface treatment plants, because of the inherent advantages in ease of work and quick operation. Pnr couplings have been designed with the industry requirements in mind, they offer sturdy bodies and high quality materials carefully chosen to withstand mechanical stress and chemical attacks. Standard types come with sintered 316 stainless steel levers and synthetic rubber seal.

PVDF levers and Viton seal are available as an option.

Code	RF1	RF	H (mm)	LP (bar)
ZSA 0075 B3	3/4"	3/4"	85	15
ZSA 0100 B3	1"	1"	73	15
ZSA 0100 D6			73	7
ZSA 0125 B3	1 1/4"	1 1/4"	110	15
ZSA 0125 D6				7
ZSA 0150 B3	1 1/2"	1 1/2"	110	15
ZSA 0150 D6				6

QUICK FITTING RISERS AND HEADER MANIFOLDS

Our range of products for surface pre-treatment plants is the most complete on the market and has been developed in collaboration with the most important system manufacturers on a worldwide basis. This has enabled us to design and optimize nozzles and accessories to the most stringent requirements of modern, high quality metal finishing plants. All necessary parts for the professional assembly of risers and pipe manifolds are made available to our customers as shown on the diagram, and readily shipped from stock. The quick fitting pipe risers can be connected and disconnected within a few seconds, allowing remarkable time saving during plant maintenance. All our parts for surface pre-treatment plants, are silicon-free and manufactured with high quality materials to assure excellent performance and long life.



- Blind cap VAE
- Pipe support clamp ZPG
- Quick coupling ZSA
- Pipe clamp ZPQ, ZPF, ZPL



GENERAL INFORMATION

ABBREVIATIONS

C	Cartridge ident color	--	LF	Hose length	m	Q	Maximum capacity	lpm
CA	Internal volume	liter	LP	Max oper. pressure	bar	RA	Radius	mm
DE	Depth	mm	LQ	Max. capacity	lpm	RF	Female thread	inches
DI	Inlet diameter	mm	LT	Max oper. Temperature	°C	RG	Male thread	inch
D, D1	Diameter	mm	M	Wire net mesh size	mesh	S	Thickness	mm
E	Inlet thread size	inches	MF	Size flexible hose	inches	SV	Sviwel base model	--
F	Size flexible hose	inches	P	Depth	mm	U	Outlet thread size	inches
H, H1	Height	mm	PD	Pipe external diameter	mm	W	Weight	kg
HE	Height	mm	PS	Pipe size	inches	WS	Wrench size	mm

PRODUCT WARRANTY

PNR products will be replaced or repaired, at the option of PNR and free of charges, if found defective in manufacturing, labeling or packaging.

The above warranty conditions will apply if notice of defect is received by PNR within 30 days from date of product installation or one year from date of shipment.

The cost of above said replacement or repair shall be the exclusive remedy for any breach of any warranty, and PNR shall not be held liable for any damage due to personal injuries or commercial losses coming from product malfunction.

Our Company Procedure for warranty requires the following steps:

- 1 Contact our Quality Manager and obtain from PNR a return authorization number
- 2 Return the products together with our form 3DA A04 duly filled
- 3 We shall issue a test report, send you a copy and return the product (replaced or repaired).

Our Company scope is obtaining full Customer satisfaction, and we are fully aware of the inconvenience which can be originated from a defective product.

Please be assured we shall do our best to make available a perfect product in the shortest possible time.

We also provide, for products which are not defective, a product return policy as follows.

PRODUCTS DELIVERED IN ERROR FROM PNR

- 1 Obtain from PNR a return authorization number
- 2 Return the products together with our form duly filled
- 3 Pnr shall issue a Credit Note for full product and shipping costs.

PRODUCTS ORDERED INCORRECTLY TO PNR

- 1 Obtain from PNR a return authorization number
- 2 Return the products, at your expense, together with our form duly filled
- 3 Products shall be in original conditions, inside the original packing
- 4 A re-stocking charge of 15% applies.

NON CATALOG PRODUCTS

Can only be returned after a quotation from PNR is obtained.

SENDING LIST

In order to automatically receive updates of our technical documentation, please photocopy this card and send it to us in a sealed envelope.

Your details will be kept on our Permanent Mailing List.

CTG AC15 BR

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04	ADRESS		SPRAYDRY NOZZLES	
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