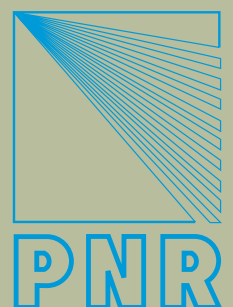




CTG PM10 BR

PAPERMILL NOZZLES



INTRODUCTION

INDEX

INTRODUCTION	Page 1
SHOWER PRODUCTS	2
Threaded nozzles	3
Self-cleaning nozzles	5
Disc nozzles for self-cleaning showers	6
Shower oscillating motor	7
OTHER PAPERMILL PRODUCTS	8
Paperweb trimmers	9
Air assisted atomizers	10
Air blowing nozzles	11
Cleaning products	12
ADDITIONAL PRODUCTS	13
Basis weight valve	14
Assembly accessories and pollution control nozzles	15

TECHNICAL PUBLICATIONS

PNR manufactures a complete range of spray nozzles for industrial applications as well as several products and systems specifically designed for industrial processes.

Information about our Company and products are available in the following publications:

PRODUCT RANGE	CTG TV 11 BR
GENERAL PURPOSE SPRAY NOZZLES	CTG UG 18 BR
AIR ASSISTED ATOMIZERS	CTG AZ 18 BR
COMPLEMENTARY PRODUCTS AND ASSEMBLY FITTINGS	CTG AC 18 BR
INDUSTRIAL TANK WASHING SYSTEMS	CTG LS 15 BR
PAPERMILL PRODUCTS	CTG PM 10 BR
EVAPORATIVE COOLING LANCES	CTG LN 16 BR
SPRAYDRY NOZZLES	CTG SP 10 BR
STEELWORK NOZZLES	CTG SW 11 BR
FIRE FIGHTING PRODUCTS	CTG FF 10 BR

As a result of continuous product improvement our technical publications are regularly updated and automatically mailed to Customers whose address is registered into our Mailing List. (See page 17).

You also find updated Catalogs into our website as shown in the back cover.

NOTES

Our products and their specifications are regularly updated to keep up with the latest stage of technology.

We regret not to be able to give previous advice about these changes to our Customers: please consider data and product specifications as given by the Catalog to be purely indicative and not binding for our Company.

Should your application imperatively require that one or more characteristics of a PNR product is strictly adhered to, we ask you to obtain a written confirmation before sending your Order.

All information in this Catalog, like performance data and product codes, diagrams and photographs, are the exclusive property of Flowtech Srl.

Reproducing any part of this Catalog without the written consent of Flowtech is forbidden.

Dimensions in this Catalog are given in millimeters (mm).

All threads are manufactured according to the ISO 228 standard, except where expressly stated. (European standards BS 2779 – DIN 259 – UNI 338)

Explanations about the abbreviations used in the Catalog are given at page 17.

Product warranty conditions are given at page 17.

All Trademarks used in the Catalog belong to the respective owners.

Our Company has
qualified its Quality
Management System
according to the ISO
9001/2000 Norms.

DNV
Cert. 04111-99-AQ
MIL SINCERT

Water is used in the paper making process, nozzles directing the water are used in preparing pulp paste, side cutting, felt washing and many other areas. Due to the many diverse paper making processes, PNR has developed highly specialized nozzles for each process.

PNR has put to work its long experience in the field of fluid dynamics to produce a range of professional papermill equipment and accessories, which has been proven through many years of successful applications, but is continuously updated to the most modern technical levels and to the specific needs of our Clients.

Our papermill product range includes a wide variety of high quality shower nozzles, feature-packed shower oscillator, and a variety of products for additional applications in the plant, including a range of state-of-the-art cooling lances and pressure nozzles for pollution control in pulp making plants.

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.

Replace the XX with one of the material codes listed below.

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 A011.

A1	Mild steel	E31	Acetalic resin (POM)
A2	High speed steel	E7	Viton
A8	Zinc coated steel	E8	Synthetic rubber (NBR)
A9	Nickel coated steel	F5	Ceramic
B1	AISI 303 Stainless steel	F31	Ruby insert, 316 body
B2	AISI 304 Stainless steel	G1	Cast iron
B3	AISI 316 Stainless steel	H1	Titanium
B31	AISI 316 L Stainless steel	L1	Monel 400
C2	AISI 416 Stainless steel, hardened	L2	Incolloy 825
C7	AISI 316 Ti Stainless steel	L8	Hastelloy
D1	Polyvinylchloride (PVC)	P6	Acr. but. styrene (ABS)
D2	Polypropylene (PP)	P8	EPDM 40 Shore
D3	Polyamide (PA)	T1	Brass
D5	Talcum filled Polypropylene	T2	Brass, chrome plated
D6	Glassfibre reinforced PP	T3	Copper
D7	High density polyethylene	T5	Bronze
D8	Polyvinylidene fluoride (PVDF)	T8	Brass, nickel plated
E0	EPDM	T81	Brass, electroless nickel plated
E1	Polytetrafluorethylene (PTFE)	V1	Aluminum
E2	PTFE (25% glassfibers)	V7	Aluminum, electroless n. plated

SHOWER PRODUCTS

Felt and fabric cleaning is one of the most common applications for shower headers, but many additional jobs can be performed.

Examples are: for cleaning suction and grooved rolls, for paper formation, for remoisturizing, for trimming paper web and for lubrication...

All these operations heavily influence the product quality ...which requires high quality and properly designed nozzles.



THREADED SHOWER NOZZLES

Needle jet nozzles, High impact straight jet nozzles, Short flat jets..all the industry standards are available in the high quality you require.



SELF CLEANING NOZZLES

Needle jet nozzles, High impact straight jet nozzles, Short flat jets..all the popular designs available in the high quality you require.



NOZZLES FOR SELF CLEANING SHOWERS

Our unique disc-type nozzles for internal brush showers are manufactured with a patented design orifice, offering longer life plus increased efficiency.



SHOWER OSCILLATING MOTOR

State of the art technology, full electronic control, low-voltage stepper motor, water-tight construction: all the best features a paper maker can think about are built into this oscillator.

SHORT FLAT JET NOZZLES

GC

For limited space applications the GC type nozzles offer flush mounting and excellent performance. Their special inside profile produces a very effective, sharp flat jet with a round orifice, minimizing clogging.

Materials **B1** AISI 303 Stainless steel
 B31 AISI 316 Stainless steel (on request)



GC

	Code	Capacity at different pressure values (lpm) (bar)							
		0.7	1.5	2.0	3.0	4.0	6.0	7.0	10.0
45°	GCM 1510 B1	2.90	4.20	5.10	5.90	6.60	7.20	7.80	9.30
60°	GCQ 1210 B1	1.20	1.70	2.10	2.40	2.70	3.00	3.20	3.80
	GCQ 1510 B1	2.90	4.20	5.10	5.90	6.60	7.20	7.80	9.30
	GCQ 1950 B1	5.50	7.80	9.50	11.0	12.3	13.4	14.5	17.3
65°	GCR 1750 B1	4.30	6.10	7.50	8.70	9.70	10.6	11.5	13.7
	GCR 1950 B1	5.50	7.80	9.50	11.0	12.3	13.4	14.5	17.3
80°	GCT 1510 B1	2.90	4.20	5.10	5.90	6.60	7.20	7.80	9.30
	GCT 1950 B1	5.50	7.80	9.50	11.0	12.3	13.4	14.5	17.3

GC nozzles are also available, on request, with no thread for weld assembly



NEEDLE JET NOZZLES

GD

A classic high impact needle jet nozzle, for cleaning and washing felts. High quality machining assures a perfect straight jet orifice, with smooth inside surface for superior solid stream performance. The nozzle design, with the orifice inlet in a higher position, minimizes the possibility of nozzle clogging. Different body lengths provide for increased clogging protection when larger pipes are used. Longer wear life can be obtained by means of a ruby orifice insert. See note on complete nozzle code for body length and connection thread.

Materials Body **B31** AISI 316L Stainless steel
 Insert **F31** Ruby insert, 316L body



GD

Code	DO	Capacity at different pressure values (lpm) (bar)								
		7.0	10	15	20	30	40	50	60	70
GDA 0120 B31xy	0.35	0.16	0.19	0.24	0.27	0.34	0.39	0.43	0.48	0.51
GDA 0420 B31xy	0.70	0.64	0.77	0.94	1.09	1.33	1.54	1.72	1.88	2.03
GDA 0620 B31xy	0.85	0.95	1.13	1.38	1.60	1.96	2.26	2.53	2.77	2.99
GDA 0890 B31xy	1.00	1.36	1.63	1.99	2.30	2.82	3.25	3.64	3.98	4.30
GDA 1160 B31xy	1.40	2.53	3.03	3.71	4.28	5.24	6.05	6.77	7.41	8.01
GDA 1270 B31xy	1.80	4.16	4.97	6.09	7.03	8.61	9.94	11.1	12.2	13.1
GDA 1450 B31xy	2.40	6.80	8.13	9.93	11.5	14.1	16.3	18.2	19.9	21.5
GDA 1730 B31xy	3.20	10.6	12.7	15.5	17.9	21.9	25.3	28.3	31.0	33.5

COMPLETE NOZZLE CODE

Complete the nozzle code with the following data

X = BODY LENGTH	Y = THREAD
A for 14 mm	A for 1/4" BSP
B for 28.5	B for 9/16 - 24 NEF
C for 22.5	

SHOWERS

HIGH IMPACT STRAIGHT JET NOZZLES



FBA

FBA

These nozzles are designed for high impact washing, with respect to conventional straight jet nozzle. Made out of hardened stainless steel for longer life, the nozzles are fitted with an internal flow straightener to improve spray performance (to be removed for use with white water).

Material C2 AISI 420 Stainless steel, hardened

Code	DO (mm)	Capacity at different pressures (lpm) (bar)							
		20	30	40	50	60	70	80	100
FBA 1450 C2	0.9	2.0	2.5	2.9	3.2	3.5	3.8	4.0	4.5
FBA 1686 C2	1.1	3.0	3.7	4.3	4.8	5.2	5.7	6.0	6.8
FBA 1930 C2	1.2	4.0	4.9	5.7	6.4	7.0	7.5	8.0	9.0
FBA 2116 C2	1.3	5.0	6.2	7.1	8.0	8.7	9.4	10.1	11.3
FBA 2138 C2	1.5	6.0	7.4	8.5	9.6	10.5	11.3	12.1	13.5
FBA 2160 C2	1.6	7.0	8.6	10.0	11.1	12.2	13.2	14.1	15.8
FBA 2181 C2	1.7	8.1	9.9	11.4	12.7	14.0	15.1	16.1	18.0
FBA 2204 C2	1.8	9.1	11.1	12.8	14.3	15.7	17.0	18.1	20.3
FBA 2226 C2	1.9	10.1	12.3	14.2	15.9	17.4	18.8	20.1	22.5



HT

QUICK CONNECT NOZZLES

HT

Quick connect nozzles offer the convenience of a fast and straightforward replacement, while keeping the original spray alignment. Nozzle tips are assembled onto bodies with thread or weld connections, each body being provided with a water-tight rubber (standard) or viton seal.

Materials Tip & Body **B31** 316L Stainless steel
 Seal **T1** Brass
E0 Synthetic rubber
E7 Viton

Please ask for our **Data Sheet 9795** for further details and performance charts,



QUICK-CONNECT NIPPLES

Quick connect nipples are available in a variety of two sizes and male threads ranging from 1/4" to 1/2", each nipple coming complete with seal.

SELF CLEANING NOZZLES

GF

The GF nozzle design helps to greatly reduce shower maintenance requirements. The nozzle body contains a mobile piston that will retract, purging the nozzle orifice when the line feed pressure is reduced. Secured by means of a locknut to nipples welded onto the shower bar, these are available with needle jet or flat jet spray patterns. Self-cleaning nozzles allow for easy installation and alignment.

GF nozzles are supplied with different thread types, as shown in the table below, and therefore their product code is to be completed with the two final digits showing the thread style required.

Materials	Nozzle	B31	AISI 316L Stainless steel
	Spring	N1	AISI 302 Stainless steel

	Code	Capacity at different pressure values (lpm) (bar)								
		3	4	5	6	7	8	10	15	20
0°	GFA 1100 B31xx	1.00	1.15	1.29	1.41	1.53	1.63	1.83	2.24	2.58
	GFA 1235 B31xx	2.35	2.71	3.03	3.32	3.59	3.84	4.29	5.25	6.07
	GFA 1330 B31xx	3.30	3.81	4.26	4.67	5.04	5.39	6.02	7.38	8.52
45°	GFM 1630 B31xx	6.30	7.27	8.13	8.91	9.62	10.3	11.5	14.1	16.3
	GFM 1750 B31xx	7.50	8.66	9.68	10.6	11.5	12.2	13.7	16.8	19.4
	GFM 1970 B31xx	9.70	11.2	12.5	13.7	14.8	15.8	17.7	21.7	25.0
	GFM 2121 B31xx	12.1	14.0	15.6	17.1	18.5	19.8	22.1	27.1	31.2
	GFM 2139 B31xx	13.9	16.1	17.9	19.7	21.2	22.7	25.4	31.1	35.9
60°	GFQ 1630 B31xx	6.30	7.27	8.13	8.91	9.62	10.3	11.5	14.1	16.3
	GFQ 1750 B31xx	7.50	8.66	9.68	10.6	11.5	12.2	13.7	16.8	19.4
	GFQ 1970 B31xx	9.70	11.2	12.5	13.7	14.8	15.8	17.7	21.7	25.0
	GFQ 2121 B31xx	12.1	14.0	15.6	17.1	18.5	19.8	22.1	27.1	31.2
	GFQ 2139 B31xx	13.9	16.1	17.9	19.7	21.2	22.7	25.4	31.1	35.9
80°	GFT 1630 B31xx	6.30	7.27	8.13	8.91	9.62	10.3	11.5	14.1	16.3
	GFT 1750 B31xx	7.50	8.66	9.68	10.6	11.5	12.2	13.7	16.8	19.4
	GFT 1970 B31xx	9.70	11.2	12.5	13.7	14.8	15.8	17.7	21.7	25.0
	GFT 2121 B31xx	12.1	14.0	15.6	17.1	18.5	19.8	22.1	27.1	31.2
	GFT 2139 B31xx	13.9	16.1	17.9	19.7	21.2	22.7	25.4	31.1	35.9

**GF****LOCKNUT**

GF nozzles as identified by above codes do not include locknut, that has to be ordered separately with the appropriate code according to the nozzle thread. See table below.

**LOCKNUT XG F7010****NIPPLES**

A specially profiled AISI 316 stainless steel nipple is designed for ease of assembly in the shower header weld-up process.

See table below for precise code identification, based on thread type.

**NIPPLE XGF 2382**

THREAD TYPE	M 28 x 1.5	3/4" - 20	1 1/8" - 20
Nozzle	GfX 1750 B3SM	GfX 1750 B3SN	GfX 1750 B3SP
Nipple	XGF 2832 B3SM	XGF 2832 B3SN	XGF 2832 B3SP
Locknut	XGF 7010 B3SM	XGF 7010 B3SN	XGF 7010 B3SP

SHOWERS

DISC NOZZLES



GE



**LOCKNUT
XTS 1008 B31**



**NIPPLE
XTS 1B07 B31**



**SAFETY RING
VLH A031 B2**



**SEAL
VDA 19A1 E8**



RUBY ORIFICE

To assure longer operation life GE nozzles can be supplied with a ruby orifice fitted into a machined body, for straight jet types only and with material codes as stated above.

GE

These nozzles have been designed to produce a sharp, high impact flat jet, and with a large orifice clogging is minimized. The nozzle body is manufactured by a stainless steel sheet stamping process, and the orifice profile is obtained by high precision machining.

Our patented orifice profile provides basic advantages over any other nozzle:

- Because of our machining technology all nozzles are burr free.
- All nozzles have zero tolerance on capacity, as well as a perfect water blade.
- The orifice profile has a radius instead of a sharp change of direction at the sides, hence turbulence points are minimized and a more streamlined water blade is produced.
- The profile design allows for a uniform steel sheet thickness around the orifice, which means our nozzles will outlast the competition.

Materials

C7 AISI 316 Ti Stainless steel

F31 Ruby insert on 316 body (straight jet nozzles only)

Code	D1	Water capacity at different pressures (lpm) (bar)						
		3	4	6	10	15	20	
0°	GEA 0500 xx	0.8	0.5	0.6	0.7	0.9	1.1	1.3
	GEA 0900 xx	1.0	0.9	1.0	1.2	1.6	2.0	2.2
	GEA 1130 xx	1.2	1.3	1.5	1.6	2.0	2.5	2.9
	GEA 1170 xx	1.5	1.7	2.0	2.4	3.0	3.8	4.3
	GEA 1310 xx	2.0	3.1	3.6	4.4	5.6	6.9	7.9
60°	GEQ 0900 xx	1.0	0.9	1.0	1.2	1.6	2.0	2.2
	GEQ 1170 xx	1.5	1.7	2.0	2.4	3.0	3.8	4.3
	GEQ 1310 xx	2.0	3.1	3.6	4.4	5.6	6.9	7.9
	GEQ 1490 xx	2.5	4.9	5.6	6.9	8.9	10.8	12.6
	GEQ 1780 xx	3.0	7.8	9.0	11.0	14.1	17.5	20.0
	GEQ 2124 xx	4.0	12.4	14.3	17.5	22.7	27.6	32.0
	GEQ 2194 xx	5.0	19.4	22.4	27.4	35.4	42.97	50.0



PATENTED ORIFICE PROFILE

This special orifice profile, developed in our laboratories, is a major advance in the process of felt cleaning.

International patents applied for.



SHOWER PIPES

We supply fixed or oscillating complete shower headers, fitted with our high quality GE type nozzles assembled by means of specially designed self orientating nipple and safety locknut. The highest quality materials and workmanship assure for a long and satisfactory service. Please ask for our Data Collection Form.



OSCILLATING MOTOR

UFX

While the job of removing the cellulose fibers is actually made from the water jets, a high quality shower oscillator must assure some prerequisites to perform satisfactorily. With features such as oscillator speed proportional to paper machine, constant speed trough felt width, and minimal dwell time, our shower oscillator is a valuable component of the felt cleaning process.

Designed with a sturdy construction, sophisticated electronic control and the high technology drive system based on a preloaded ball screw, our oscillators offer an exact and precise movement, with no mechanical play and minimal backlash. The oscillator is built to a IP 65 protection grade, and the inner volume is kept under higher than ambient pressure, which keeps the inside parts in perfect working conditions for maximum reliability even under the worse conditions.

Push / Pull force	5000	N
Span	200	mm
Maximum speed	10	mm per second
Temperature range	0-50	°C
Inside air pressure	0,3	bar

Material Body **B31** Aisi 316L Stainless steel

**AUTOMATIC DRIVE**

The high quality electronic control of the oscillator can be operated in manual mode, or automatically driven using a speed signal provided by the paper machine. Either way, the internal microprocessor controls the shower motion based on the four basic parameters, felt length, speed, twist and nozzle pitch. A standard RS 232 port allows for monitoring the shower operation from a remote location.

An emergency stop is provided, as requested from EN 60204.

Feed	220	V - 50 Hz
Unit power	250	VA



OTHER PAPERMILL PRODUCTS



Page 9

PAPERWEB TRIMMERS

Sharp, straight water jets are produced by these specially designed nozzles, to precisely trim the sides of a paperweb. All trimmers are available with brass body and tip, and with a stainless steel filter on the feed side. Orifices available with ruby insert, or hardened stainless steel.



Page 10

AIR ASSISTED ATOMIZERS

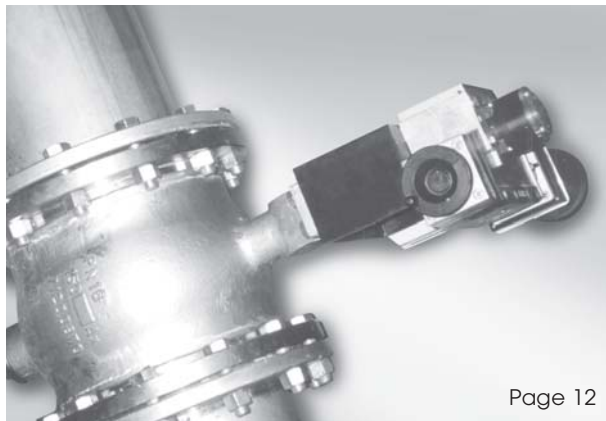
Pre-wet your press section with these high quality air assisted atomizers, producing a finely atomized flat jet spray pattern. See our Catalog CTG AZ15 BR for a complete product range, special types and accessories.



Page 11

AIR BLOWING NOZZLES

For blow-off applications, we offer models producing a flat, sharp air curtain up to 600 mm width. Available in high quality plastic materials or aluminum, see specification.



Page 12

BASIS WEIGHT VALVE

A very delicate and important part in every paper making machine. Our valves have passed the 'real world' test, working satisfactorily for years under harsh papermill conditions.

ADDITIONAL MILL APPLICATIONS

PAPER WEB TRIMMERS

GM

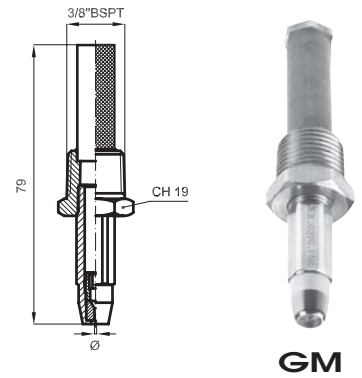
These nozzles provide a glass-rod like, sharp needle jet which cuts the side of your paper web in a sharp and clean profile.

The brass nozzle body is fitted with a large surface stainless steel filter cartridge, for long operation before service is required.

The brass nozzle tip contains a high quality orifice insert (Ruby or Hardened SS) for extended life at high pressure.

Materials

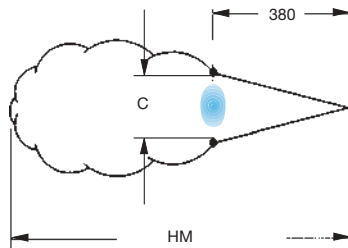
Body and tip	B3	AISI 316 Stainless steel
	T1	Brass
Orifice	C1	420 Aisi Stainless steel, hardened
	F31	Ruby insert, on 316L body
	F5	Ceramic insert, on 316L body



Code	D1	Water capacity at different pressures (lpm) (bar)					
		3	5	10	15	20	
0°	GMA 0170 xx	0.40	0.17	0.21	0.31	0.38	0.43
	GMA 0290 xx	0.50	0.29	0.38	0.55	0.70	0.80
	GMA 0320 xx	0.60	0.32	0.41	0.57	0.72	0.83
	GMA 0570 xx	0.75	0.57	0.73	1.04	1.28	1.47
	GMA 0860 xx	0.90	0.86	1.17	1.66	2.04	2.35
	GMA 1100 xx	1.00	1.00	1.29	1.83	2.25	2.59
	GMA 1185 xx	1.25	1.85	2.40	3.40	4.20	4.80
	GMA 1270 xx	1.50	2.70	3.50	4.90	6.00	6.90

ADDITIONAL MILL APPLICATIONS

AIR ASSISTED ATOMIZERS



WH = Water capacity (lph)
AM = Air capacity (Nml/min)

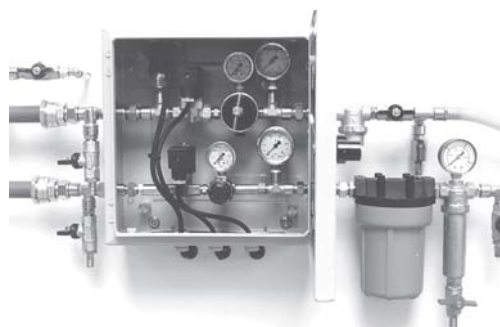
MW

MW air assisted atomizers provide an ultra fine atomized spray, in a wide range of capacities, spray angles and spray patterns. Commonly used for such applications as paper remosturizing, paper coating, lubrication and humidification. See our Air Atomizers Catalog CTG AZ18 BR for our complete product range.

Materials
B1 AISI 303 stainless steel
B3 AISI 316 stainless steel
T8 Nickel plated brass

Set-up Code	Air pressure (bar)																
	WM		AM		WM		AM		WM		AM		WM	AM	PA	PL	C
SUM 2167	1,0	9,0	25	2,4	11,6	48	3,1	15,6	56	4,2	17,1	73	1,4	0,7	170	3000	
	1,1	7,8	30	2,5	10,4	51	3,2	14,6	59	4,6	15	80	2,5	1,5	200	3700	
	1,3	6,6	32	2,7	9,40	54	3,4	13,7	62	4,9	12,8	87	3,2	2,0	220	4000	
	1,4	5,2	36	3,0	7,30	61	3,8	10,8	71	5,3	11	94	3,8	3,0	280	4200	
	1,7	3,1	44	3,2	5,50	68	4,2	8,5	82	5,6	9,4	103	5,3	4,0	330	4800	
	Ln XMW 5002 An XMW 4021	2,0	2,0	50	3,5	4,10	75	4,9	5,2	98	6,3	7,2	119	-	-	-	-
	2,2	1,1	56	3,8	2,90	81	6,0	2,3	120	7,0	6,1	134	-	-	-	-	
SUU 2171	0,9	8,2	20	2,1	13,5	36	2,7	19,1	42	4,6	16,1	69	1,1	0,7	710	2100	
	1,0	6,8	23	2,4	11,4	42	3,0	17,1	46	4,9	13,8	76	2,1	1,5	810	2400	
	1,1	5,5	27	2,7	9,20	47	3,2	15,1	52	5,3	11,5	83	3,0	2,0	890	2600	
	1,3	4,1	30	3,0	7,10	53	3,5	13,1	57	5,6	9,3	90	3,5	3,0	970	2700	
	1,4	2,9	34	3,2	5,00	59	4,2	8,1	72	6,0	7,3	97	5,6	4,0	970	3200	
	Ln XMW 5002 An XMW 4020	-	-	-	3,4	4,00	63	4,6	5,9	79	6,3	5,6	104	-	-	-	-
	-	-	-	3,5	3,30	66	4,9	4,0	86	6,7	4,3	112	-	-	-	-	
SUM 2320	1,1	11,2	54	2,7	19,6	93	3,5	27	112	4,6	33	137	1,4	0,7	200	3000	
	1,3	8,5	60	2,8	17,3	98	3,7	25	116	4,9	28	149	2,4	1,5	330	3200	
	1,4	6,5	65	3,0	15,2	103	3,8	23	121	5,3	24	161	3,0	2,0	460	3400	
	1,5	5,0	71	3,1	13,2	109	3,9	21	126	5,6	19,7	174	3,7	3,0	460	3500	
	1,7	3,8	77	3,2	11,4	114	4,1	18,9	132	6,0	15,7	187	5,3	4,0	480	4000	
	Ln XMW 5003 An XMW 4024	-	-	-	-	-	-	4,2	17	137	6,3	12,4	200	-	-	-	-
SUM 2600	1,0	17,0	23	2,4	28,0	51	3,4	38	72	3,9	65	75	1,1	0,7	150	2400	
	1,1	11,0	27	2,5	23,0	59	3,5	33	80	4,2	53	89	2,1	1,5	170	3000	
	1,3	7,6	33	2,7	18,9	66	3,7	28	89	4,6	40	108	2,8	2,0	220	3400	
	1,4	3,2	40	2,8	15,1	74	3,8	23	97	4,9	30	127	3,7	3,0	280	3600	
	-	-	-	3,0	11,7	79	3,9	19,7	105	5,3	21	149	4,9	4,0	350	4000	
	Ln XMW 5004 An XMW 4023	-	-	-	-	-	-	4,2	13,1	120	5,6	13,8	173	-	-	-	-
	-	-	-	-	-	-	4,6	7,2	138	6,3	3,2	225	-	-	-	-	
SUQ 2700	0,9	27,0	33	2,4	39,0	67	3,2	58	76	4,6	59	106	1,1	0,7	300	3400	
	1,0	20,0	38	2,7	30,0	77	3,5	47	87	5,3	40	132	2,4	1,5	410	3500	
	1,1	15,9	45	3,0	24,0	87	3,8	38	97	5,6	32	145	3,2	2,0	430	3700	
	1,3	12,5	48	3,2	17,8	98	3,9	34	103	6,0	26	158	3,9	3,0	480	3800	
	1,4	10,2	56	3,4	15,1	103	4,2	27	113	6,3	20	172	6,0	4,0	510	4400	
	Ln XMW 5004 An XMW 4024	1,5	7,6	62	3,5	12,9	109	4,6	20	126	6,7	15,9	185	-	-	-	-
	-	-	-	3,7	10,6	114	4,9	14,8	140	7,0	12,7	198	-	-	-	-	
SUQ 3126	1,0	29,0	90	2,1	100	119	3,0	126	140	4,1	140	181	1,0	0,7	250	3400	
	1,1	18,9	108	2,2	79,0	133	3,1	110	151	4,2	125	193	1,8	1,5	430	3800	
	-	-	-	2,4	62,0	147	3,2	95	163	4,6	89	225	2,4	2,0	460	4300	
	-	-	-	2,5	48,0	162	3,4	78	184	4,9	58	265	3,4	3,0	530	4600	
	-	-	-	2,7	36,0	177	3,5	62	193	5,3	34	305	4,9	4,0	580	5200	
	Ln XMW 5005 An XMW 4025	-	-	-	-	-	-	3,7	48	210	5,6	16,7	340	-	-	-	-
	-	-	-	-	-	-	3,8	37	225	-	-	-	-	-	-	-	

Liquid pressure (bar) 0,7 2,0 3,0 4,0



UMQ

Our control cabinets are simple, cost convenient solution for the fine tuning of your humidification system, and are delivered complete with all the equipment necessary for precise system control. See full specification in Catalog CTG AZ18 BR

Code	L	AA	AC
UMQ AA01 V0	1/4"	3/8"	1/4"
UMQ AA02 V0	3/8"	1/2"	1/4"
UMQ AB01 V0	1/4"	3/8"	*
UMQ AB02 V0	3/8"	1/2"	*

L = Water inlet
 AA = Atomizing air
 AC = Cylinder drive air
 * These cabinets have one air line only

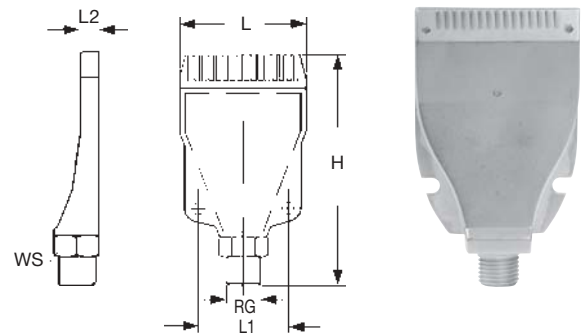
ADDITIONAL MILL APPLICATIONS

BLOW OFF AIR NOZZLES

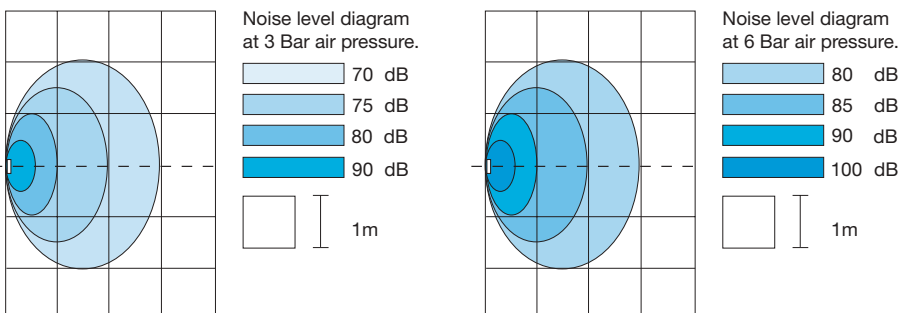
UEA 0525

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 (Nm³/h)						H	L	L1	L2	WS
		10	17	22	28	33	90					
UEA 0525 E31	1/4"	10	17	22	28	33	90	48	35	6,5	16	
UEA 0527 V7	1/4"	10	17	22	28	33	90	48	35	6,5	16	



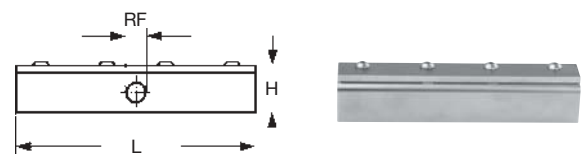
UEB

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

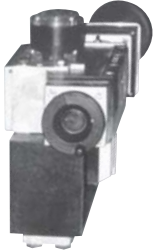
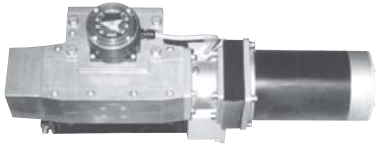


Code	RF	Air Capacity (Nm³/min)										H	L	W
		IN		OUT		IN		OUT		IN				
UEB 0150 V7	1/4"	0,26	4,70	0,34	6,00	0,42	7,10	0,51	8,60	0,60	10,6	30	150	0,3
UEB 0300 V7	1/4"	0,52	9,40	0,68	12,0	0,84	14,2	1,02	17,2	1,20	21,2	30	300	0,7
UEB 0600 V7	1/4"	1,03	18,7	1,40	24,0	1,68	28,4	2,04	34,4	2,40	42,4	30	600	1,4



ADDITIONAL MILL APPLICATIONS

BASIS WEIGHT VALVE



UX

This critical valve must precisely adjust the pulp quantity which enters the machine, controlling the paper weight. The automatic adjustment mechanism of this component needs to be designed with extreme care, since the high precision required on very fine adjustment must not be affected by any mechanical play.

Our system, based on a globe valve driven by an electrical stepper motor through a ball screw drive, eliminates the danger of mechanical play, and assures precise valve settings independent from the value of the resisting torque.

The flow through the valve varies as a linear function of the opening angle (0° to 90°).

The electronic control cabinet matches the high quality of the valve itself, and offers the following:

- Local or Remote valve control
- Adjustment speed is variable, can be set slow for remote control, or fast for manual control.
- High precision automatic weight control.

ADDITIONAL PRODUCTS

TANK WASHING AND PLANT CLEANING

See our Industrial Tank Washing catalog CTG LS15 BR for our complete product range, working with low and high pressures, and find the ideal product for chest or bleach tower cleaning in the pulp mill, or cleaning the head box in a paper machine. Our cleaning guns and hose reels also help to keep your plant clean. Our eductors are a professional solution to keep vats agitated.



Page 14

ADDITIONAL PRODUCTS

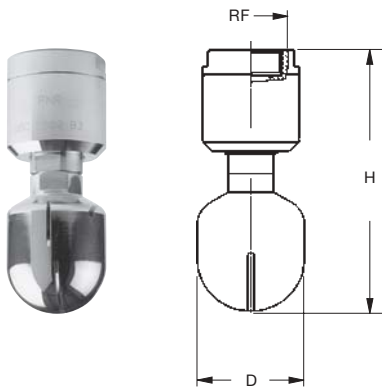
Simplify installation while improving the look and effectiveness of your system with PNR professional assembly accessories, use our nozzles for your pollution control system. A number of problem solving products in several points of your plant.



Page 16

ADDITIONAL MILL APPLICATIONS

TANK CLEANING NOZZLES



UB

We make available one of the widest range of tank washing nozzles and rotating heads in the industry.

Our tankwashers are typically used for such applications as chest or bleach tower cleaning in the pulp mill, or cleaning the head box in a paper machine.

Please refer to our Catalog CTG LS15 BR for complete information.

PIPE CLEANING



UC

UC nozzles produce high pressure liquid jets backwards and are used for internal pipe cleaning in a number of papermill systems.

The job is performed quite efficiently, since the washing liquid being ejected backwards takes along and expels from the pipe the dirty particles which have been detached from the pipe wall.

Normally supplied in stainless steel, or in hardened stainless steel where very high pressure and/or long lasting jobs are necessary.

More details from our Data Sheet 9043.

MILL CLEAN UP



UMV

The UMV washgun is a well proven ergonomic design, and allows for fast and efficient washing of machines and plant areas while keeping the hot water consumption under control.

Outer body is made out of brass or stainless steel with inside parts in stainless steel.

The jet pattern can be varied from straight jet to full cone spray to adjust for different jobs, and the trigger is easily locked open for more comfortable operation.

The sturdy rubber lining assures protection from hot water temperature and avoids damages if the gun is falling to ground.

The gun can be fed through an independent hose, or by means of one of our hose reels as shown at page 15.

See our catalog CTG AC18 BR for full details and accessories list.



XUM P050 E0
25 METER 1/2" HOSE



XUM S010 B3
HOSE STAND AISI 316

MILL CLEAN UP**HOSE REELS****UMU**

Our UMU hose reels have been designed for industrial environment and offer both the advantage of allowing fast and easy cleaning jobs, and the convenience of avoiding the danger of hoses left loose on the floor that can cause an accident.

Completely built in stainless steel to avoid rust and corrosion in the harsh papermill environment.

The range includes, in addition to standard reels, the following options

reels with automatic hose return,

reels with orientable outlet

reels with extra capacity when very long hoses are required.

The most convenient type for any requirement is then available, with fast delivery times and the best quality on the market.

**VENTURI EDUCTORS****UP**

Our Venturi eductors serve the purpose of agitating, mixing, and dissolving powders within round and square vats .

Eductors made in stainless steel can also be used for the purpose of eating liquids with steam.

Complete technical information in our Complementary Products Catalog CTG AC18 BR.



ADDITIONAL PRODUCTS



LINE FILTERS

VEM

A wide range of line filters is shown in our Accessories Catalog CTG AC15 BR, for capacities ranging up to 1050 lpm. Their strong aluminum body and the large surface cartridge assure long operation times even in very hard industrial environment. Cleaning the filter is easily performed either getting out the trapped dirt through the outlet port at the bottom of the filter bowl or unscrewing the entire bowl without any tool being required.



BALL FITTINGS

ZR

Three models of ball fittings allow for convenient nozzle orientation, sizes ranging from 1/8" to 2 1/2", manufactured in brass or stainless steel. See our catalog CTG AC18 BR for full specification.



ASSEMBLY CLAMPS

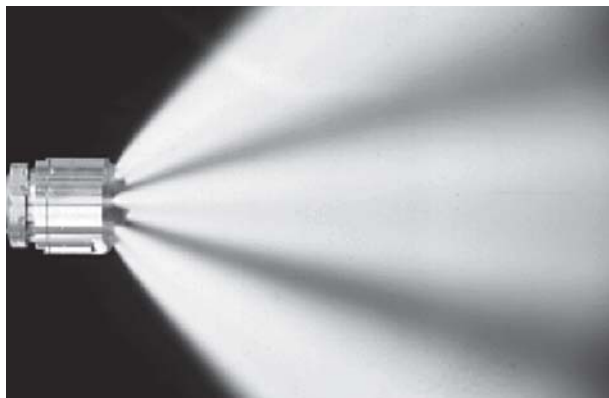
ZP

The easiest and fastest way to assemble nozzle onto a shower header, without threading or welding. The assembly only requires drilling a hole into the pipe. Great for replacing nozzles on a stripped thread location.



POLLUTION CONTROL NOZZLES

Our nozzles catalog shows several full cone, hollow cone and spiral nozzles, which assure the highest resistance to plugging, and the added feature of self-drainage to reduce chemical build-up. Capacities up to 500 lpm, spray angles up to 120° and the choice between full cone and hollow cone spray pattern allow for optimal scrubber design. Several types of stainless steel and superalloys available.



AIR ASSISTED LANCES

We offer a full range of high quality air assisted atomization lances to be used for evaporative cooling systems, with a wide choice of stainless steel or other special alloys. See our Evaporative Cooling Catalog CTG LN15 BR for full details.

ADDITIONAL INFORMATION**ABBREVIATIONS**

AM	Air capacity	Nml/min	LP	Max oper. pressure	bar	RF	Female thread	inches
CA	Internal volume	liter	LQ	Maximum capacity	lpm	RG	Male thread	inches
DI	Inlet diameter	mm	LT	Max oper. temperature	°C	S	Thickness	mm
D, D1	Diameter	mm	MF	Size flexible hose	inches	SV	Sviwel base model	-
DO	Orifice diameter	mm	P	Depth	mm	U	Outlet thread size	inches
E	Inlet thread size	inches	PD	Pipe external diameter	mm	W	Weight	kg
H, H1	Height	mm	PS	Pipe size	inches	WH	Water capacity	lph
HE	Height	mm	Q	Maximum capacity	lpm			

PRODUCT WARRANTY

PNR products shall be replaced or repaired, as deemed convenient by the Company, if found defective in manufacturing, marking or packing. Above warranty conditions shall apply if notice of defect is received from PNR within 30 days from date of product installation, or within one year from date of shipment.

The cost of above said replacement or repair as above specified 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.

PNR desires to handle warranty returns avoiding mistakes and giving Customers the best possible service.

Therefore we have organized a Company procedure with the following steps to be followed :

- 1 Contact PNR Quality Manager to obtain a RIN (return identification number) and a 3DA A04 Form.
- 2 Fill the Form 3DA A04 as required, including RIN number and include into material shipment
- 3 Pnr shall repair or replace the product as appropriate, and return it together with a copy of our internal inspection Report.

PNR wishes to obtain complete Customer satisfaction, and all our personnel has been instructed in order to make available, in such an event, a perfect product in the shortest possible time.

OTHER PRODUCT RETURNS

Receiving returned products not precisely identified can originate delays in handling the single cases and even some product losses. In order to avoid such problems please follow the PNR procedures as described below.

PRODUCTS DELIVERED ERRONEOUSLY BY PNR

- 1 Obtain from PNR a RIN (Return ident number) and a 3DA A04 Form.
- 2 Return products to PNR including the 3DA A04 Form properly filled including RIN number.
- 3 PNR shall issue a Credit Note payable to you including product and all transport cost.

PRODUCTS ORDERED ERRONEOUSLY TO PNR

- 1 Returned products will only be accepted if in new original condition and properly packed.
- 2 Obtain from PNR a RIN (Return ident number) and a 3DA A04 Form.
- 3 Return products to PNR including the 3DA A04 Form properly filled including RIN number.
- 4 A 10% inspection and re-stocking charge and all transport cost are at charge of Customer.
- 5 A Credit note for the proper amount shall be issued and paid.

SPECIAL NON CATALOG PRODUCTS

The return of these products is only possible after PNR has issued an offer for purchase.

DISCLAIMER

Our products are manufactured with the best care and according to the latest developments of the technology, but we cannot assure that every one of our products is perfectly fit for any possible specific process.

The information provided in this Catalog is provided "as it is" and we make no warranty of any kind with respect to the subject matter or accuracy of the information contained herein. This publication may include technical inaccuracies or typographical errors and changes may be periodically made to the information herein without previous notice.

SENDING LIST

In order to automatically receive updates of our technical Documentation please photocopy this card and send it to us inside a sealed envelope, your details shall be kept on our Permanent Mailing List.

01	COMPANY		SPRAY NOZZLES	
02	NAME		AIR ASSISTED ATOMIZERS	
03	FUNCTION		EVAPORATIVE COOLING LANCES	
04	ADRESS		SPRAYDRY NOZZLES	
05	PHONE	FAX	TANK WASHING SYSTEMS	
06	WEB SITE	E MAIL	ACCESSORIES AND FITTINGS	



PNR UK LTD

16, Sugarbrook Rd - Aston Fields Ind. Estate
BROMSGROVE WORCS B60 3DW
Tel. +44 (0) 1527 579066 - Fax +44 (0) 1527 579067
www.pnr.co.uk - E-mail: spraynozzles@pnr.co.uk
www.pnr-nozzles.com

CTG PM10 BR



Our products are distributed through:

PNR America
PNR Asia
PNR Baltic

PNR Benelux
PNR Deutschland
PNR France

PNR Italia
PNR Mexico
PNR U. Kingdom

We are moreover represented in:

Argentina
Australia
Austria
Brazil
Canada
Chile
China
Denmark
Finland
Greece

Korea
India
Indonesia
Iran
Ireland
Island
Malaysia
New Zealand
Norway
Pakistan
Poland

Portugal
Russia
Singapore
Slovenia
Spain
South Africa
Sweden
Taiwan
Turkey
Ukraine
Venezuela