

ROLLING MILL



Courtesy from Danieli & C.



GW SERIES

GW series nozzles have been the Worldwide standard for many years in hot descaling mills.

The introduction of the metal insert and the nozzle orientation assured by the dove-tail coupling between nozzle tip and nipple have allowed for increased efficiency in the descaling process and higher steel quality. Careful studies on the nozzle inner profile have assured improved jet impact and uniformity to water jet distribution.

HW SERIES

Our HW series, manufactured both in the HW...AH standard and in the HW...AA mini size, offer easier mounting operation and watertight assembly between nipple and nozzle, while the two different diameter sizes allow different spray densities, per meter, on the manifold.

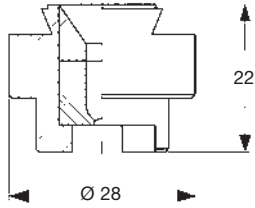
HW...AK standard size and HW...AB small size type nozzles offer higher efficiency thanks to a carefully studied inside profile, resulting in lower energy losses caused by turbulence. This equates to higher impact values on the steel surface.

RETROFITS

Nozzle bodies, tips, nuts or specially designed components are quoted on request.

ROLLING MILL

GW



NOZZLE TIPS / CLASSIC DESIGN

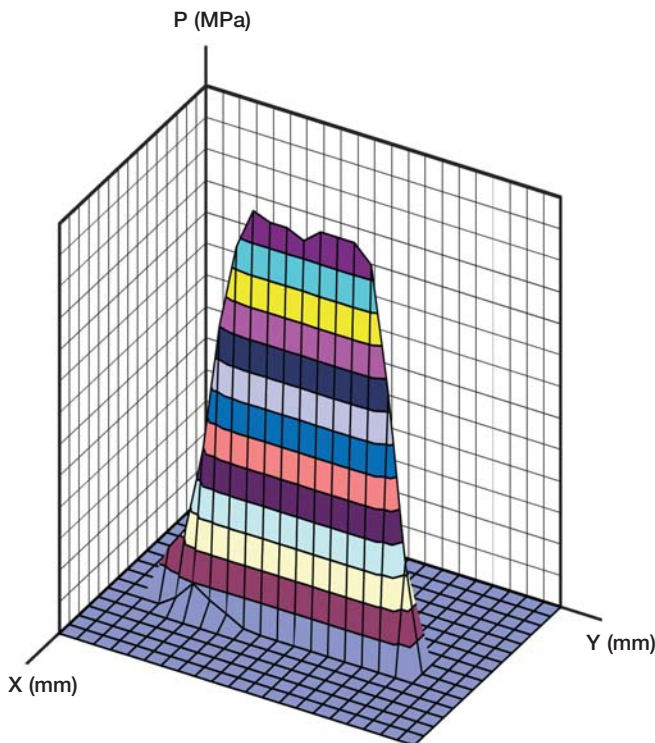
For many years the GW was a worldwide standard in hot descaling of steel strips. They have undergone many improvements, specifically to the inner orifice profile, resulting in a very even distribution of the water jet impact onto the steel surface. Their typical design with a dove-tail coupling between nipple and nozzle tip assures for correct alignment of the nozzles onto the spray manifold. Several nipples length values and a specific locknut allow for a wide choice of different assembly dimensions.

Materials	Body	B1	AISI 303 Stainless steel
	Tip	C1	AISI 420 Hardened stainless steel
		F1	Tungsten Carbide

GWE	GWF	GWL	Tip Code	D mm	D1 mm	Capacity at different pressure values								(lpm) (bar)	(gpm) (psi)
						80	90	100	120	140	160	180	200		
•	•	•	2162xx	2.0	1.5	16.2	17.1	18.0	19.5	21.3	22.8	24.0	25.0	6.60	
•	•	•	2208xx	2.1	1.8	20.8	21.8	23.0	25.2	27.2	29.1	30.8	35.5	9.38	
•	•	•	2250xx	2.5	1.9	25.0	26.5	28.0	31.0	33.0	35.4	37.5	39.0	10.30	
•	•	•	2320xx	2.8	2.4	32.0	34.2	36.0	39.4	42.6	45.5	48.3	50.9	13.45	
•	•	•	2402xx	3.0	2.5	40.2	42.7	45.0	49.0	53.0	57.0	60.0	63.0	16.64	
•	•	•	2520xx	3.5	2.7	52.0	55.0	58.0	63.5	68.6	73.3	77.8	82.0	21.66	
•	•	•	2642xx	3.8	3.2	64.2	68.3	72.0	78.0	85.0	91.0	96.0	101	26.68	
•	•	•	2798xx	4.3	3.6	79.8	84.4	89.0	98.0	105	112	119	126	32.29	
•	•	•	2996xx	4.7	4.0	99.6	106	112	122	132	141	150	158	41.74	
•	•	•	3112xx	5.0	4.2	112	119	125	137	148	158	168	177	46.76	
•	•	•	3120xx	5.2	4.4	120	127	134	147	158	169	180	189	49.93	

Conversion Units	
200 bar	= 2900 psi
1 bar	= 14.5 psi
1 lpm	= 0.26 gpm

CODE	ANGLE
GWE	26°
GWF	30°
GWL	40°



IMPACT DISTRIBUTION DIAGRAMS

Optimum performance in any descaling operation can only be obtained using the proper nozzle design. A properly designed inside nozzle profile assures the high impact value is achieved. PNR descaling nozzle inserts, manufactured with close tolerances, are systematically tested to assure their high performance level is maintained.

ROLLING MILL

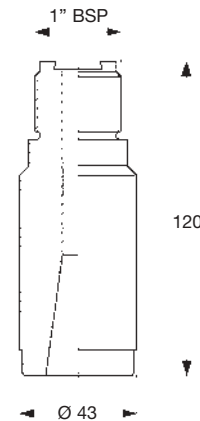
ASSEMBLY PARTS / CLASSIC DESIGN

ZB NIPPLES

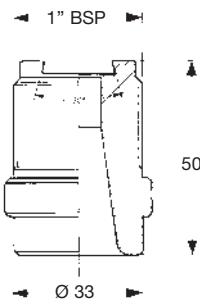
ZB series welding nipples have been designed for the assembling of GW descaling tips onto main manifolds. The accurately machined dove-tail profile assures for precise alignment of the nozzle tip with respect to the axis of the spray manifold. The contact area with the nozzle tip shows a surface machined to an accurate finish to prevent leakage between nipple and nozzle tip. ZB nipples are available in three length values to match different dimensional requirements.

Material B31 AISI 316L Stainless steel

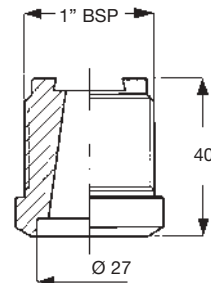
Tip Code	L mm	RG inch	W lbs
ZBB 0100 B3	40	1	0.4
ZBC 0100 B3	120	1	2.0
ZBD 0100 B3	50	1	0.5



ZBC



ZBD

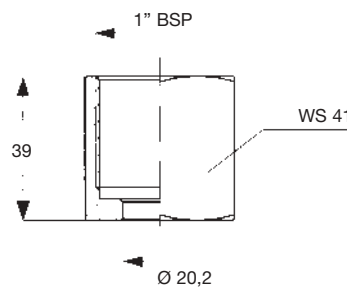


ZBB

VAA 0100 B1

The VAA 0100 B1 cap is designed for the proper assembly between ZB nipples and GW descaling nozzle tips. The strong design assures for a safe operation under the high pressure values typically used in hot descaling mill systems.

Material B1 AISI 303 Stainless steel



VAA 0100 B1

CUSTOMER DESIGNS

In addition to the three standard nipple sizes, often available from stock, we can quote and supply special dimensions on ZB nipples according to the customer design.

Material B1 AISI 303 Stainless steel



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ASSEMBLY PARTS / STANDARD, SHORT

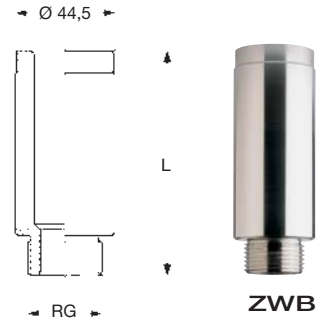
WELDING NIPPLES

HW nozzles can be assembled on a series of three different nipples, with the same inlet, but with three different lengths.

The precision machined nipple inlet port assures precise positioning of the nozzle flat jet to the specified offset angle value of 15° with regard to the manifold center line.

This makes it possible to obtain uniform impact distribution yielding better descaling results.

Material B2 AISI 304 Stainless steel



Tip Code	RG inch	L mm	W lbs
ZWB 0073 B2	1	73	1.1
ZWB 0100 B2	1	100	1.6
ZWB 0120 B2	1	120	1.9

FLOW STABILIZER

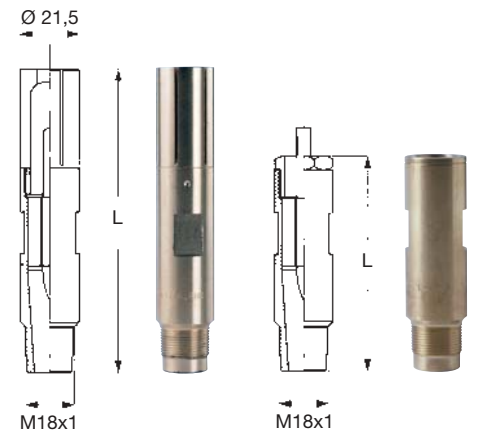
The flow stabilizer is a critical component for proper descaling, by reducing flow turbulence losses, a larger fraction of the water flow energy can be used for generating impact on the surface to be descaled.

The design consists of a cylindrical brass body with a polished inner surface, housing a cast stainless steel flow stabilizer which straightens the liquid path to minimize turbulence.

Different length nipples are available, with or without inlet filter.

The codes always include the multifin flow straightener XHW CL00 B3.

Materials Nozzle inlet T1 Brass
Filter T1 Brass
Flow stabilizer B3 AISI 316 Stainless steel



Code	L mm	Weight lbs	Notes
XHW CG10 T1	74.0	0.17	without filter
XHW CG20 T1	110.5	0.24	with filter
XHW CG21 T1	130.5	0.31	with filter

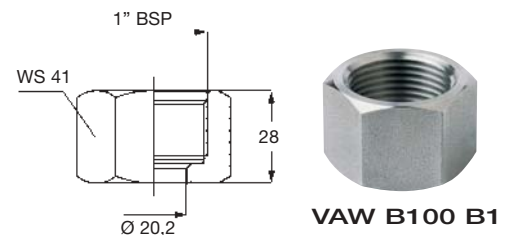


XHW CL00 B3

LOCKNUT

The locknut for ZWB series descaling nipples has been designed profiting from a long experience on the field. The sturdy design and the generous dimensions give the maximum protection to the nozzle and the nipple thread. One locknut size fits all standard size ZWB series nipples of any length. See page 21 for special models allowing very tight nozzle pitch.

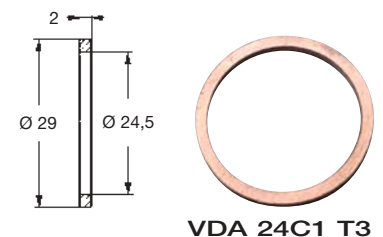
Material B1 AISI 303 Stainless steel



SEAL

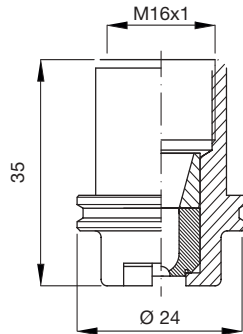
The round seal provides proper assembly between nozzle and nipple. One size fits all standard size ZWB nipple types.

Material T3 Copper



ROLLING MILL

HW / AA



DESCALING TIPS / BROACH FIT, MINI, SHORT

The modern design of these nozzles offers the same advantages as the full size HW tips. In addition it makes possible to use a smaller pitch between the nozzles allowing for a higher impact value per unit length. The nozzle efficiency is enhanced by means of a carefully designed flow stabilizer, which minimizes turbulence due to sharp direction change at the inlet from the main manifold. Provision is also made for a filter to be mounted at the nozzle inlet, to minimize clogging and abrasion of the nozzle orifice.

Materials	Body	B1	AISI 303 Stainless steel
	Tip	C1	AISI 420 Hardened stainless steel
		F1	Tungsten Carbide

HWE	HWF	HWL	Tip Code	D mm	D1 mm	Capacity at different pressure values										(lpm) (bar)	(gpm) (psi)
						80	90	100	120	140	160	180	200	2900			
						•	•	•	2106 xx AA	1.5	1.2	10.6	11.4	12.0	13.1		
•	•	•	2134 xx AA	1.8	1.4	13.4	14.2	15.0	16.4	17.7	19.0	20.1	21.2	5.60			
•	•	•	2162 xx AA	2.0	1.5	16.2	17.1	18.0	19.5	21.3	22.8	24.0	25.0	6.60			
•	•	•	2208 xx AA	2.1	1.8	20.8	21.8	23.0	25.2	27.2	29.1	30.8	35.5	9.38			
•	•	•	2250 xx AA	2.5	1.9	25.0	26.5	28.0	31.0	33.0	35.4	37.5	39.0	10.30			
•	•	•	2320 xx AA	2.8	2.4	32.0	34.2	36.0	39.4	42.6	45.5	48.3	50.9	13.45			
•	•	•	2402 xx AA	3.0	2.5	40.2	42.7	45.0	49.0	53.0	57.0	60.0	63.0	16.64			
•	•	•	2520 xx AA	3.5	2.7	52.0	55.0	58.0	63.5	68.6	73.3	77.8	82.0	21.66			
•	•	•	2642 xx AA	3.8	3.2	64.2	68.3	72.0	78.0	85.0	91.0	96.0	101	26.68			
•	•	•	2798 xx AA	4.3	3.6	79.8	84.4	89.0	98.0	105	112	119	126	32.29			
•	•	•	2996 xx AA	4.7	4.0	99.6	106	112	122	132	141	150	158	41.74			
•	•	•	3112 xx AA	5.0	4.2	112	119	125	137	148	158	168	177	46.76			
•	•	•	3120 xx AA	5.2	4.4	120	127	134	147	158	169	180	189	49.93			

Conversion Units	
200 bar	= 2900 psi
1 bar	= 14.5 psi
1 lpm	= 0.26 gpm

CODE	ANGLE
HWE	26°
HWF	30°
HWL	40°

COMPLETE CODE

Codes including the several options available as follows.

Tip Code	Assembly
HWX 1234 XX AA	nozzle, no accessories
HWX 1234 XX BA	nozzle with flow stabilizer L=74.0 mm
HWX 1234 XX DA	nozzle with filter & flow stabilizer L=110.5 mm
HWX 1234 XX EA	nozzle with filter & flow stabilizer L=130.5 mm



ALIGNMENT NOZZLE

Alignment nozzle HWZ 01Ax B1 allows for fast and safe positioning of the nipples onto the manifold prior to welding. Please ask for Data Sheet TFTI HWACC3 to identify the precise part you need since nozzles with different offset angles are available. The nipples are aligned in place by means of a straight rod and welded to assure the right jet direction.



DISASSEMBLING TOOL

The disassembling tool makes it easier to extract a nozzle from inside the nipple, for replacement or inspection. The clamping tip (HWZ 03A0 B1) and the handle (HWZ 04A0 B1) are sold and must be ordered separately.

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ASSEMBLY PARTS / MINI, SHORT

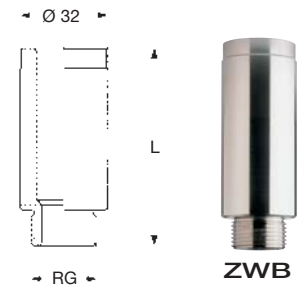
WELDING NIPPLES

Small size nozzles can be assembled on three different nipples, with the same inlet, but with three different lengths.

The precision machined nipple inlet port assures precise positioning of the nozzle flat jet to the specified offset angle value of 15° with regard to the manifold center line.

This makes it possible to obtain uniform impact distribution, yielding better descaling results.

Material B2 AISI 304 Stainless Steel



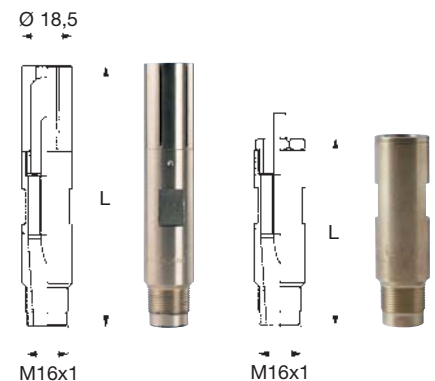
Tip Code	RG inch	L mm	W lbs
ZWB 0032 B2	3/4	32	0.18
ZWB 0039 B2	3/4	39	0.26
ZWB 0080 B2	3/4	80	0.33

FLOW STABILIZER

The flow stabilizer is the critical component for a perfect descaler. This maximizes the impact force on the surface to be descaled.

The codes beside always include the multifin flow improver XHW AL00 B3.

Materials Nozzle inlet T1 Brass
Filter T1 Brass
Flow stabilizer B3 AISI 316 Stainless steel



Tip Code	L mm	Weight lbs	Notes
XHW AG 10 T1	74.0	0.18	without filter
XHW AG 20 T1	110.5	0.26	with filter
XHW AG 21 T1	130.5	0.33	with filter



XHW AL00 B3

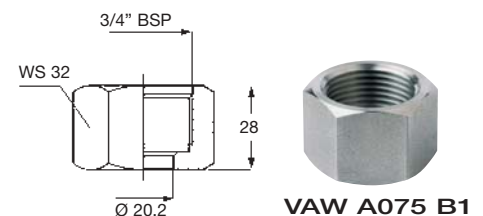
LOCKNUT

The locknut for ZWB series descaling nipples has been designed profiting from a long experience on the field.

The sturdy design and the generous dimensions give the maximum protection to the nozzle and the nipple thread, so as to avoid such abrasion wear which often occur in the rolling mill.

One locknut size fits all small size ZWB series nipples, for any length.

Material B1 AISI 303 Stainless steel

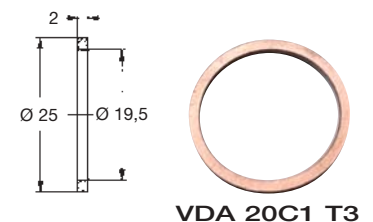


VAW A075 B1

SEAL

The round seal provides proper assembly between nozzle and nipple. One size fits all small size nipple types.

Material T3 Copper



VDA 20C1 T3

ROLLING MILL

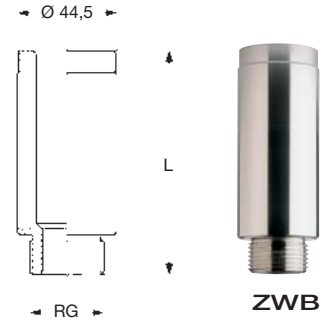
ASSEMBLY PARTS / STANDARD, LONG

WELDING NIPPLES

HW nozzles can be assembled on series of three different nipples, with the same inlet, but with three different lengths. The precision machined nipple inlet port assures precise positioning of the nozzle flat jet to the specified offset angle value of 15° with regard to the manifold center line.

This makes it possible to obtain uniform impact distribution, yielding better descaling results.

Material B2 AISI 304 Stainless steel



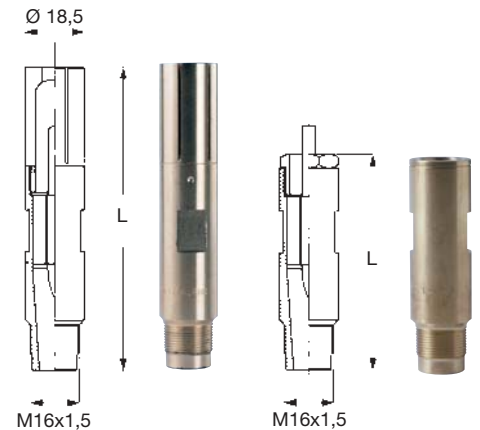
Tip Code	RG inch	L mm	W lbs
ZWB 0073 B2	1	73	1.10
ZWB 0100 B2	1	100	1.60
ZWB 0120 B2	1	120	1.90

FLOW STABILIZER

The flow stabilizer is the critical component for a perfect descaler. This maximizes the impact force on the surface to be descaled.

The codes beside always include the multifin flow improver (XHW DL00 B3).

Materials Nozzle inlet T1 Brass
Filter T1 Brass
Flow stabilizer B3 AISI 316 Stainless steel



Tip Code	L mm	Weight lbs	Notes
XHW DG 10 T1	76	0.18	without filter
XHW DG 11 T1	96	0.22	without filter
XHW DG 20 T1	110	0.24	with filter
XHW DG 21 T1	130	0.31	with filter
XHW DG 22 T1	150	0.35	with filter



XHW DL00 B3

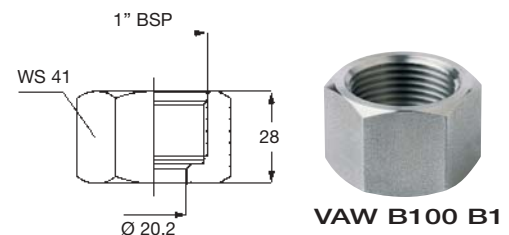
LOCKNUT

The locknut for ZWB series descaling nipples has been designed profiting from a long experience on the field.

The sturdy design and the generous dimensions give the maximum protection to the nozzle and the nipple thread, so as to avoid such abrasion wear who often occur in the rolling mill.

One locknut size fits all standard size ZWB series nipples, for any length.

Material B1 AISI 303 Stainless steel



SEAL

The round seal provides proper and leak proof assembly between nozzle and nipple. One size fits all standard size nipple types.

Material T3 Copper

