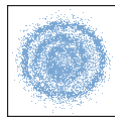


STANDARD SPIRAL NOZZLES

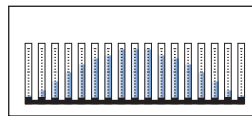
E series spiral nozzles work on the impact principle, by the deflection of a water stream that impacts onto a spiral profiled surface which provides the desired spray angle. These are one-piece nozzles with no internal vane and a wider free passage. The liquid inlet has nearly the same size as the outlet orifice diameter. Their special design makes them virtually clog-free and produces a wider spray coverage than other nozzles for a given flow and pressure.

The capacity values on darker background can be obtained with metal nozzles only, plastic materials being too weak to assure structural nozzle resistance in harsh operating conditions. If the capacity values you are looking for are those on darker background, we recommend to choose metal nozzles for their longer operating life.

■ Thread specification: BSPT, NPT



Spray section



Convex distribution



Typical applications

- Gas cooling
- Exhaust scrubbers
- Desulfurization
- Cooling

Other applications

- Spray of chemicals
- Fire prevention and fire suppression

Spray Angle	Code	RG inch	D mm	D1 mm	Capacity at different pressure values (l/min) (bar)							Dimensions mm		
					0.7	1.0	2.0	3.0	5.0	7.0	10	H	H1	WS
60°	EBQ 1550 xx	1/4"	2.4	2.4	2.66	3.18	4.49	5.50	7.10	8.40	10.0	45	12	14
	EBQ 2156 xx		4.0	3.2	7.54	9.01	12.7	15.6	20.1	23.8	28.5			
	ECQ 2230 xx	3/8"	4.8	3.2	11.4	13.6	19.2	23.5	30.3	35.9	42.9	48	14	19
	ECQ 2410 xx		6.4	3.2	20.0	24.0	33.9	41.5	53.6	63.4	75.8			
	ECQ 2640 xx	1/2"	7.9	3.2	31.2	37.3	52.7	64.6	83.4	99.0	118	64	18	22
	EDQ 2940 xx		9.5	4.7	45.6	54.5	77.1	94.4	122	144	172			
	EDQ 3128 xx	3/4"	11.1	4.7	61.8	73.9	105	128	165	196	234	70	19	27
	EEQ 3165 xx		12.7	4.7	79.7	95.3	135	165	213	252	301			
	EFQ 3260 xx	1"	15.9	6.3	126	150	212	260	336	397	475	92	26	34
	EFQ 3372 xx		19.0	6.3	180	215	304	372	480	568	679			
EHQ 3507 xx	1 1/2"	22.2	7.9	245	293	414	507	655	774	926	111	27	50	
EKQ 4109 xx	2"	34.9	11.1	527	629	890	1090	1407	1665	1990	149	31	65	
90°	EBU 1550 xx	1/4"	2.4	2.4	2.66	3.18	4.49	5.50	7.10	8.40	10.0	45	12	14
	EBU 2100 xx		3.2	3.2	4.83	5.77	8.16	10.0	12.9	15.3	18.3			
	EBU 2156 xx	3/8"	4.0	3.2	7.54	9.01	12.7	15.6	20.1	23.8	28.5	48	14	19
	ECU 2230 xx		4.8	3.2	11.4	13.6	19.2	23.5	30.3	35.9	42.9			
	ECU 2317 xx	1/2"	5.6	3.9	15.3	18.3	25.9	31.7	40.9	48.4	57.9	64	18	22
	ECU 2410 xx		6.4	4.8	20.0	24.0	33.9	41.5	53.6	63.4	75.8			
	ECU 2640 xx	3/4"	7.9	5.5	31.2	37.3	52.7	64.6	83.4	98.7	118	70	19	27
	EDU 2940 xx		9.5	3.3	45.6	54.5	77.1	94.4	122	144	172			
	EDU 3128 xx	1"	11.1	3.7	61.8	73.9	105	128	165	196	234	92	26	34
	E EU 3165 xx		12.7	4.7	79.7	95.3	135	165	213	252	301			
	E FU 3260 xx	2"	19.0	6.3	126	150	212	260	336	397	475	149	31	65
	E FU 3372 xx		23.0	6.3	180	215	304	372	480	568	679			
	EKU 4109 xx	3"	34.9	11.1	527	629	890	1090	1407	1665	1990	219	42	89
	EMU 4204 xx		44.5	14.3	985	1178	1666	2040	2634	3116	3725			
EMU 4267 xx	50.8	14.3	1290	1542	2180	2670	3447	4078	4875					

THREAD SIZE CODE (RG)

EB	EC	ED	EE	EF	EH	EK	EM	EP
1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"

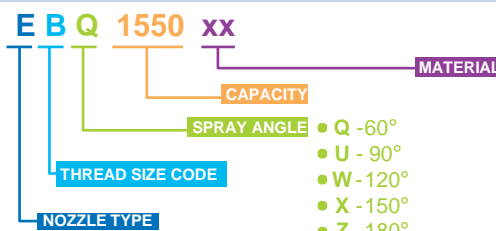


SPIRAL NOZZLES

The picture shows the inside of a spiral nozzle with a complete free passage without any internal vane. It has nearly the same size of liquid inlet and outlet orifice diameter to avoid clogging.

HOW TO MAKE UP THE NOZZLE CODE

EX.: EBQ 1550 B31



- B31 - AISI 316L Stainless steel
- T1 - Brass
- D1 - PVC
- D2 - PP
- D8 - PVDF
- E1 - PTFE
- L61 - Hastelloy C 22
- On request special materials are quoted

STANDARD SPIRAL NOZZLES

Code	RG inch	D mm	D1 mm	Capacity at different pressure values (l/min) (bar)								Dimension mm		
				0.7	1.0	2.0	3.0	5.0	7.0	10	H	H1	WS	
120°	EBW 1550 xx	1/4"	2.4	2.4	2.66	3.18	4.49	5.50	7.10	8.40	10.0	45	12	14
	EBW 2100 xx		3.2	3.2	4.83	5.77	8.16	10.0	12.9	15.3	18.3			
	EBW 2156 xx		4.0	3.2	7.54	9.01	12.7	15.6	20.1	23.8	28.5			
	ECW 2156 xx	3/8"	4.0	3.2	7.54	9.01	12.7	15.6	20.1	23.8	28.5	48	14	19
	ECW 2230 xx		4.8	3.2	11.4	13.6	19.2	23.5	30.3	35.9	42.9			
	ECW 2317 xx		5.6	4.0	15.3	18.3	25.9	31.7	40.9	48.4	57.9			
	ECW 2410 xx		6.4	4.0	20.0	24.0	33.9	41.5	53.6	63.4	75.8			
	ECW 2640 xx		7.9	4.0	31.2	37.3	52.7	64.6	83.4	98.7	118			
	EDW 2940 xx	1/2"	9.5	4.8	45.6	54.5	77.1	94.4	122	144	172	64	18	22
	EDW 3104 xx		9.7	4.8	50.2	60.0	84.9	104	134	159	190			
	EDW 3128 xx		11.1	4.8	61.8	73.9	105	128	165	196	234			
	EEW 3165 xx	3/4"	12.7	4.8	79.7	95.3	135	165	213	252	301	70	19	27
	EFW 3260 xx	1"	15.9	6.3	126	150	212	260	336	397	475	92	26	34
	EFW 3372 xx		19.0		180	215	304	372	480	568	679			
	EHW 3507 xx	1 1/2"	22.2	7.9	245	293	414	507	655	774	926	111	27	50
	EHW 3663 xx		25.4		320	383	541	663	856	1013	1210			
	EHW 3747 xx		28.6		361	431	610	747	964	1141	1364			
	EKW 4109 xx	2"	34.9	11.1	527	629	890	1090	1407	1665	1990	149	31	65
EKW 4139 xx	38.1			672	803	1136	1391	1796	2125	2540				
EMW 4204 xx	3"	44.5	14.3	985	1178	1666	2040	2634	3116	3725	203	35	90	
EMW 4265 xx		51.0		1280	1530	2164	2650	3421	4048	4838				
EPW 4412 xx	4"	63.5	15.9	1990	2379	3364	4120	5319	6293	7522	230	40	127	
150°	ECX 2230 xx	3/8"	4.8	3.2	11.4	13.6	19.2	23.5	30.3	35.9	42.9	48	14	19
	ECX 2317 xx		5.6	4.0	15.3	18.3	25.9	31.7	40.9	48.4	57.9			
	ECX 2410 xx		6.4		20.0	24.0	33.9	41.5	53.6	63.4	75.8			
	ECX 2640 xx		7.9		31.2	37.3	52.7	64.6	83.4	98.7	118			
	EDX 2940 xx	1/2"	9.5	4.8	45.6	54.5	77.1	94.4	122	144	172	64	18	22
	EDX 3128 xx		11.1		61.8	73.9	105	128	165	196	234			
	EEX 3165 xx	3/4"	12.7	4.8	79.7	95.3	135	165	213	252	301	70	19	27
	EFX 3260 xx	1"	15.9	6.3	126	150	212	260	336	397	475	92	26	34
	EFX 3372 xx		19.0		180	215	304	372	480	568	679			
	EHX 3507 xx	1 1/2"	22.2	7.9	245	293	414	507	655	774	926	111	27	50
	EHX 3663 xx		25.4		320	383	541	663	856	1013	1210			
	EHX 3747 xx		28.6		361	431	610	747	964	1141	1364			
EKX 4109 xx	2"	34.9	11.1	527	629	890	1090	1407	1665	1990	149	31	65	
EKX 4139 xx		38.1		672	803	1136	1391	1796	2125	2540				
180°	EBZ 2156 xx	1/4"	4.0	2.5	7.54	9.01	12.7	15.6	20.1	23.8	28.5	45	12	14
	ECZ 2230 xx	3/8"	4.8	3.2	11.4	13.6	19.2	23.5	30.3	35.9	42.9	48	14	19
	ECZ 2317 xx		5.6	4.0	15.3	18.3	25.9	31.7	40.9	48.4	57.9			
	ECZ 2410 xx		6.4		20.0	24.0	33.9	41.5	53.6	63.4	75.8			
	ECZ 2640 xx		7.9		31.2	37.3	52.7	64.6	83.4	98.7	118			
	EDZ 2940 xx	1/2"	9.5	3.3	45.6	54.5	77.1	94.4	122	144	172	64	18	22
	EDZ 3128 xx		11.1	4.8	61.8	73.9	105	128	165	196	234			
	EEZ 3165 xx	3/4"	12.7	4.7	79.7	95.3	135	165	213	252	301	70	19	27
	EFZ 3260 xx	1"	15.9	6.3	126	150	212	260	336	397	475	92	25	36
	EFZ 3372 xx		19.0		180	215	304	372	480	568	679			
	EHZ 3507 xx	1 1/2"	22.2	7.9	245	293	414	507	655	774	926	111	27	50
	EHZ 3663 xx		25.4		320	383	541	663	856	1013	1210			
	EHZ 3747 xx		28.6		361	431	610	747	964	1141	1364			
	EKZ 4109 xx	2"	34.9	11.1	527	629	890	1090	1407	1665	1990	149	31	63
	EKZ 4139 xx		38.1		671	803	1136	1391	1796	2125	2540			

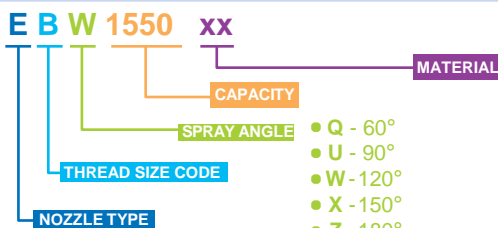


THREAD SIZE CODE (RG)

EB	EC	ED	EE	EF	EH	EK	EM	EP
1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"

HOW TO MAKE UP THE NOZZLE CODE

EX.: EBW 1550 B31



• B31 - AISI 316L Stainless steel

• T1 - Brass

○ D1 - PVC

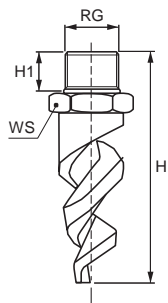
○ D2 - PP

○ D8 - PVDF

○ E1 - PTFE

○ L61 - Hastelloy C 22

○ Special materials are quoted on request

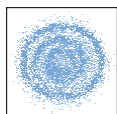


SPIRAL NOZZLES / WIDE FREE PASSAGE

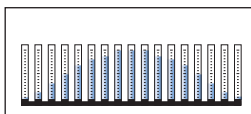
The E-X series nozzles, with their typical elongated spiral design, work on the impact principle, by deflection of a water stream onto their spiral profile that provides the desired spray angle. Their specific shape with no internal parts leaves a larger internal free passage suitable to work with higher capacities and for higher clog resistance than other nozzles of the same size.

The capacity values on darker background can be obtained with metal nozzles only as plastic nozzles cannot ensure resistance in harsh operating conditions. If the capacity values you are looking for are those on darker background, we recommend to choose metal nozzles for their longer operating life.

■ Thread specification: BSPT, NPT



Spray section



Convex distribution



Typical applications

- Gas cooling
- Exhaust scrubbers
- Desulfurization
- Cooling

Other applications

- Spray of chemicals
- Fire prevention
- Fire suppression

Code	RG inch	D mm	D1 mm	Capacity at different pressure values (l/min) (bar)								Dimension mm					
				0.7	1.0	2.0	3.0	5.0	7.0	10	H	H1	WS				
120°																	
ECW 2230 xx Xy	3/8"	4.8	4.8	11.4	13.6	19.2	23.5	30.3	35.9	42.9	70	15	22				
ECW 2317 xx Xy		5.6	5.6	15.3	18.3	25.9	31.7	40.9	48.4	57.9							
ECW 2410 xx Xy		6.4	6.4	20.0	24.0	33.9	41.5	53.6	63.4	75.8							
ECW 2640 xx Xy		7.9	7.9	31.2	37.3	52.7	64.6	83.4	98.7	118							
EDW 2940 xx Xy	1/2"	9.5	9.5	45.6	54.5	77.1	94.4	122	144	172	86	18	27				
EDW 3128 xx Xy		11.1	11.1	61.8	73.9	105	128	165	196	234							
EEW 3165 xx Xy	3/4"	12.7	12.7	79.7	95.3	135	165	213	252	301	130	20	27				
EFW 3260 xx Xy	1"	16.0	16.0	126	150	212	260	336	397	475	131	26	34				
EFW 3372 xx Xy		19.0	19.0	180	215	304	372	480	568	679	168	26	34				
EHW 3507 xx Xy	1 1/2"	22.2	22.2	245	293	414	507	655	774	926	171	27	50				
EHW 3663 xx Xy		25.4	25.4	320	383	541	663	856	1013	1210							
EHW 3747 xx Xy		28.6	28.6	361	431	610	747	964	1141	1364	185	27	50				
EKW 4109 xx Xy	2"	35.0	35.0	527	629	890	1090	1407	1665	1990	279	32	65				
EKW 4139 xx Xy		38.1	38.1	672	803	1136	1391	1796	2125	2540							
EMW 4204 xx Xy	3"	44.5	44.5	985	1178	1666	2040	2634	3116	3725	267	32	90				
EMW 4265 xx Xy		51.0	51.0	1280	1530	2164	2650	3421	4048	4838							
EPW 4412 xx Xy	4"	63.5	63.5	1990	2379	3364	4120	5319	6293	7522	293	36	115				

ES / SILICON CARBIDE NOZZLES

PNR designs and supplies spiral nozzles made out of several types of silicon carbide for applications where fluids containing abrasive solid particles must be sprayed and long nozzle service life is required. Please contact our Sales department for more detailed information.

HOW TO MAKE UP THE NOZZLE CODE

Spiral nozzles with extra wide internal passage are widely used in pollution treatment and can be supplied with customized connections. Please refer to the picture of Silicon carbide nozzles on the left. Locknut fitting makes assembly easier and more convenient. This design, the only one possible for Silicon carbide nozzles, is optional for nozzles cast in alloys or stainless steel. To identify such nozzles, please note the following product coding.



ES / SILICON CARBIDE NOZZLES

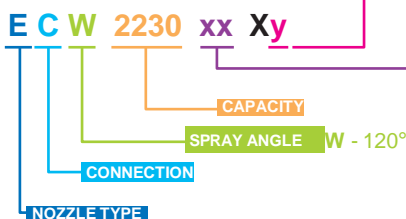
EHW 3747 xx Xy

xx = Material code, see MATERIAL table on the below page

y = CONNECTION CODE
 B - BSPT, Male thread
 N - NPT, Male thread
 F - Locknut fitting

HOW TO MAKE UP THE NOZZLE CODE

EX.: ECW 2230 B31XB



- B31 - AISI 316L Stainless steel
- T1 - Brass
- D1 - PVC
- D2 - PP
- D8 - PVDF
- E1 - PTFE
- L61 - Hastelloy C 22
- Special materials are quoted on request