



FULL CONE SPRAY NOZZLES

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WATER SPRAY NOZZLES

Full cone spray nozzles



AA series full cone nozzle are designed to offer the best spray coverage distribution thanks to their slotted vane, which means the spray covers the area to be protected with a very uniform spray.

For fire fighting applications these nozzles are manufactured normally in brass, while different materials can be quoted upon request.

The performance table below gives the capacity code and the capacity values in lpm at different pressure values, while the spray angle is identified by the nozzle type code as shown, e.g.:

AAQ 2155 T1 > Spray angle **60°** (AAQ)

Capacity code 2155

Material: Brass (T1)

AAU 2155 T1 > Spray angle **90°** (AAU)

Capacity code 2155

Material: Brass (T1)

AAW 2155 T1 > Spray angle **120°** (AAW)

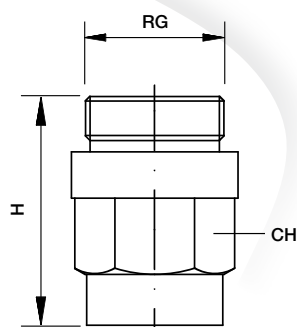
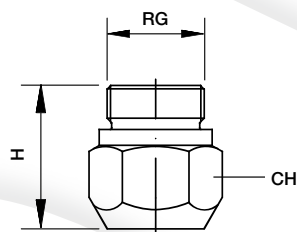
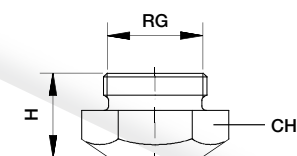
Capacity code 2155

Material: Brass (T1)

Materials

B31 - AISI 316 L stainless steel

T1 - Brass



Full cone nozzles

AAQ 60°	AAU 90°	AAW 120°	Code	RG inches	Capacity Lpm at pressure (bar)					CH mm	H mm	OD mm
					1	3	5	7	10			
*	*	*	2155 T1	1/2"	9.0	15.5	20.0	24.0	28.3	24	27	4.4
*	*	*	2200 T1		11.5	20.0	25.0	30.0	36.5			5.3
*	*	*	2250 T1		14.0	25.0	32.0	37.0	45.6			6.3
*	*	*	2310 T1	3/4"	18.0	31.0	40.0	47.0	56.6	32	28	6.5
*	*	*	2390 T1		22.5	39.0	50.0	59.0	71.2			6.9
*	*	*	2490 T1		28.0	49.0	63.0	75.0	89.5			8.0
	*	*	2610 T1	1"	35.0	61.0	80.0	95.0	111	40	28	9.0
	*	*	2780 T1		45.0	78.0	100	120	142			10.5
	*	*	3123 T1	1-1/4"	70.0	123	160	190	225	50	30	12.5
	*	*	3194 T1	1-1/2"	112	194	250	295	354	60	35	16.0
	*	*	3240 T1		142	240	316	370	438			18.0
	*	*	3310 T1	2"	180	310	400	474	566	75	44	20.0
	*	*	3490 T1	2-1/2"	280	490	630	750	895	90	52	25.0

WATER SPRAY NOZZLES

Full cone spray nozzles



BG series full cone nozzle are designed to offer the best resistance against clogging thanks to their x-shaped vane, which means added system reliability when the piping may contain foreign particles.

For fire fighting applications these nozzles are manufactured normally in brass, while different materials can be quoted upon request, e.g. nickel plated brass or several grades of stainless steel.

The performance table below gives the capacity code and the capacity values in lpm at different pressure values, while the spray angle is identified by the nozzle type code as shown, e.g.

The nozzle code specifies the performance:

BGQ 2185 T1 > Spray angle **60°** (BGQ)

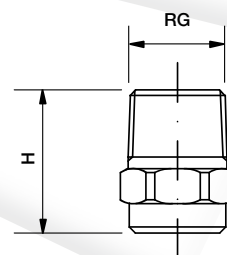
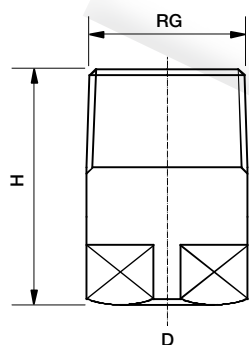
Capacity 2185

Material: Brass (T1)

BGW 2220 T1 > Spray angle **120°** (BGW)

Capacity 2220

Material: Brass (T1)



Standard spray angle

BGQ 60°	Code	RG inches	Capacity Lpm at pressure (bar)					D mm	H mm	W kg
			1*	3	5	7	10			
*	2185 T1	½"	10.7	18.5	23.9	28.3	33.8	21	33	0.04
*	2300 T1		17.3	30.0	38.7	45.8	54.8			
*	2220 T1	¾"	12.7	22.0	28.4	33.6	40.2	27	40	0.10
*	2350 T1		20.2	35.0	45.2	53.5	63.9			
*	2610 T1	1"	35.2	61.0	78.8	93.2	111	33	52	0.20
*	2370 T1		21.4	37.0	47.8	56.5	67.6			
	2610 T1		35.2	61.0	78.8	93.2	111			
	2870 T1		50.2	87.0	112	133	159			
	3104 T1		60.0	104	134	159	190			

Wide spray angle

BGW 120°	Code	RG inches	Capacity Lpm at pressure (bar)					D mm	H mm	W kg
			1*	3	5	7	10			
*	2220 T1	½"	12.7	22.0	28.4	33.6	40.2	21	33	0.04
*	2250 T1		14.4	25.0	32.3	38.2	45.6			
*	2290 T1		16.7	29.0	37.4	44.3	52.9			
*	2320 T1		18.5	32.0	41.3	48.9	58.4			
*	2360 T1		20.8	36.0	46.5	55.0	65.7			
*	2500 T1	¾"	28.9	50.0	64.5	76.4	91.3	27	40	0.10
	2920 T1	1"	53.1	92.0	119	141	168	33	52	0.20

* Capacity at 1 bar = K factor

For higher capacities please enquiry about our nozzle type BE with female thread

Materials

T1 - Brass

B31 - AISI 316 stainless

WATER SPRAY NOZZLES

Flat fan jet spray nozzles



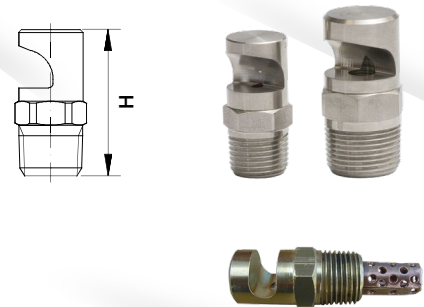
K series nozzles produce a flat fan jet spray with a large or very large spray angle, and are typically used to cover large area surfaces. They are available in two different types e.g.:

K-W

The jet is leaving the nozzle with a 15° deflected spray, while the spray angle is about 120°, where the typical application is cooling the outside surface of hydrocarbon tanks.

K nozzles are normally available in brass, while nickel plated brass or other materials are available upon request, and are produced with a tapered BSPT thread to allow for proper jet orientation.

Additional options like NPT thread and copper filter are listed at the page bottom with the proper coding.

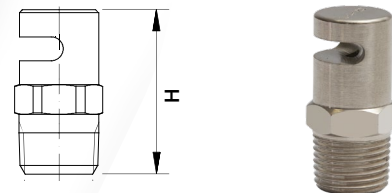


15° Deflected spray

1/2 KDW	3/4 KEW	Orifice dia mm	Capacity Lpm at pressure (bar)					W kg	Sprary angle at pressure 4 bar
			1*	3	5	7	10		
1780 T1	--	2.6	4.50	7.8	10.1	11.9	14.2	0.11	140°
2117 T1	--	3.3	6.75	11.7	15.1	17.9	21.4	(1/2)	130°
2157 T1	--	3.8	9.06	15.7	20.3	24.0	28.7		130°
2188 T1	--	4.1	10.9	18.8	24.3	28.7	34.3		142°
2270 T1	2270 T1	5.0	15.6	27.0	35.0	41.2	49.3	0.40	128°
2310 T1	2310 T1	5.3	17.9	31.0	40.0	47.4	56.6	(3/4)	135°
2390 T1	2390 T1	6.0	22.5	39.0	50.3	59.6	71.2		140°
2470 T1	2470 T1	6.5	27.1	47.0	60.7	71.8	85.8		140°
2550 T1	2550 T1	7.1	31.8	55.0	71.0	84.0	100		140°
--	2700 T1	8.0	40.4	70	90.4	107	128		140°
--	2940 T1	9.3	54.3	94	121	144	172		150°
--	3110 T1	10.3	63.5	110	142	168	201		145°
--	3110 T1	12.2	94.7	164	212	251	299		145°

K-X

The jet is leaving the nozzle without deflection, while the spray angle is normally larger than 150°, where the typical application is making up a water wall to contain fire smokes.



Not Deflected spray

1/2 KDX	3/4 KEX	Orifice dia mm	Capacity Lpm at pressure (bar)					W kg	Sprary angle at 4 bar
			1*	3	5	7	10		
1780 T1	--	2.6	4.50	7.8	10.1	11.9	14.2	0.11	160°
2117 T1	--	3.3	6.75	11.7	15.1	17.9	21.4	(1/2)	165°
2157 T1	--	3.8	9.06	15.7	20.3	24.0	28.7		170°
2188 T1	--	4.1	10.9	18.8	24.3	28.7	34.3		170°
2270 T1	2270 T1	5.0	15.6	27.0	35.0	41.2	49.3	0.40	168°
2310 T1	2310 T1	5.3	17.9	31.0	40.0	47.4	56.6	(3/4)	172°
2390 T1	2390 T1	6.0	22.5	39.0	50.3	59.6	71.2		172°
2470 T1	2470 T1	6.5	27.1	47.0	60.7	71.8	85.8		168°
2550 T1	2550 T1	7.1	31.8	55.0	71.0	84.0	100		172°
--	2700 T1	8.0	40.4	70	90.4	107	128		170°
--	2940 T1	9.3	54.3	94	121	144	172		170°
--	3110 T1	10.3	63.5	110	142	168	201		170°
--	3110 T1	12.2	94.7	164	212	251	299		170°

* Capacity at 1 bar = K factor

Materials

B31 - AISI stainless 316L

T1 - Brass

WATER SPRAY NOZZLES

Open sprinklers



RJ series sprinkler nozzles have been designed to perform fire fighting operations when used in fixed spray systems. They produce a directional spray with a conical shape, the spray being made up of medium velocity drops, and are used to protect surfaces of all geometries, avoiding temperature rise and structural damages.

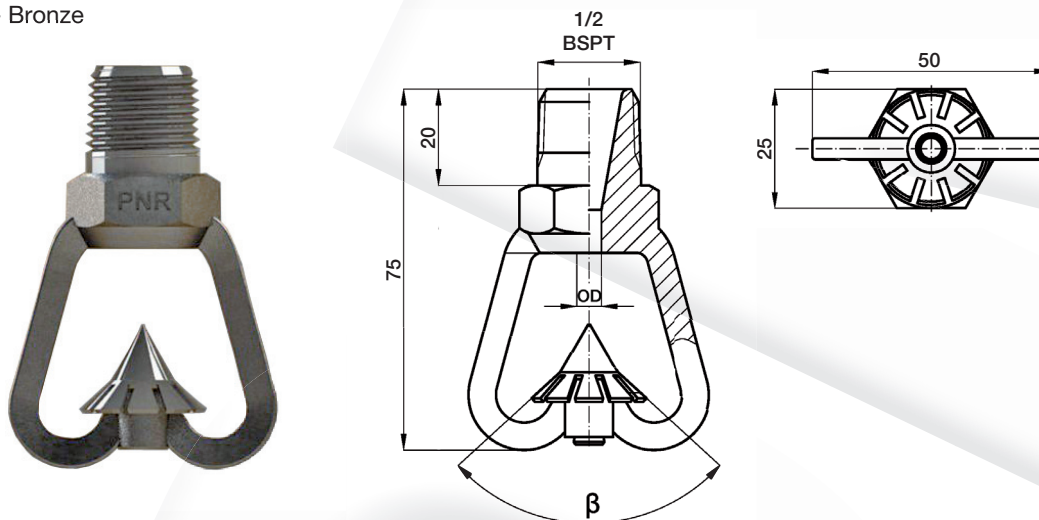
These nozzles can be equipped with different orifice plugs in order to avoid any clogging problem caused by dust, foreign particles or insects.

All RJ type sprinklers are supplied as standard with 1/2 NPT male thread.

Materials

B31 - AISI 316L stainless steel

T5 - Bronze



Product coding

RJ sprinklers range includes 7 capacity values, each one available with 8 different spray angles.

The two tables underneath give (Table 1) the capacity code of each single nozzle for different pressure values and (Table 2) the nozzle code for different spray angles.

Please note the following:

1. The complete nozzle code is made up by three parts, eg RJT – for spray angle identification 2748 – for capacity value T5 – for material, in this case bronze
2. Therefore a complete nozzle code would look as follows: RJT 2748 T5

Table 1

Capacity Code	Capacity Lpm at pressure (bar)					OD mm
	1*	3	5	7	10	
2300 T5SB	17.3	30.0	38.7	45.8	54.7	5.16
2449 T5SB	25.9	44.9	57.9	68.5	81.9	6.35
2573 T5SB	33.1	57.3	74.0	87.6	105	7.14
2748 T5SB	43.2	74.8	96.6	114	137	8.33
3102 T5SB	59.0	102	132	156	187	9.53
3140 T5SB	80.6	140	180	213	255	11.1
3180 T5SB	104	180	232	274	328	12.7

* Capacity at 1 bar equals K factor

Table 2

Nozzle code for spray angle	Spray angle value β
RJR	65 °
RJT	80 °
RJV	95 °
RJJ	110 °
RJW	125 °
RJY	140 °
RJX	160 °
RJZ	180 °

RJ nozzles carry an UL listing.

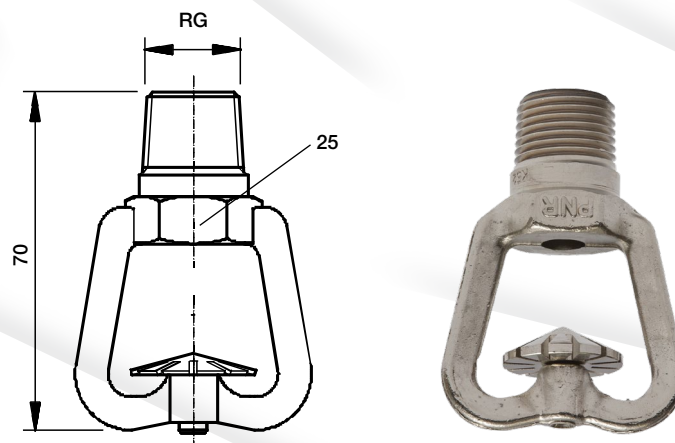
RO series sprinkler nozzles produce a full jet spray whose angle can reach very large values, which allows for cooling operations onto very large surfaces.

The same nozzle body can be supplied with both an 1/2" and a 3/4" tapered BSPT thread, while NPT threads are available as an option, as well as copper or stainless inlet filters (see bottom of page for appropriate coding).

Materials

B31 - AISI 316 L stainless steel

T1 - Brass



Thread 1/2"

Code	Capacity Lpm at pressure (bar)					OD mm
	1*	3	5	7	10	
ROY 2156 T1SB	9.00	15.6	20.0	24.0	29.0	4.0
ROY 2198 T1SB	11.5	19.8	25.0	30.0	36.0	4.5
ROY 2270 T1SB	15.8	27.0	35.0	42.0	50.0	5.0
ROY 2300 T1SB	18.0	30.0	40.0	48.0	57.0	5.5
ROY 2390 T1SB	23.0	39.0	50.0	60.0	71.0	6.0
ROY 2470 T1SB	27.0	47.0	61.0	72.0	86.0	6.5
ROY 2550 T1SB	31.0	55.0	72.0	84.0	91.0	7.0
ROY 2700 T1SB	41.0	70.0	92.0	112	130	8.0
ROY 2910 T1SB	52.0	91.0	117	140	165	9.0
ROY 3110 T1SB	64.0	110	139	165	200	10.0

* Capacity at 1 Bar in liters per minute equals K factor

Thread 3/4"

Code	Capacity Lpm at pressure (bar)					OD mm
	1*	3	5	7	10	
ROY 2157 T1SB	9.00	15.6	20.0	24.0	29.0	4.00
ROY 2199 T1SB	11.5	19.8	25.0	30.0	36.0	4.50
ROY 2271 T1SB	15.8	27.0	35.0	42.0	50.0	5.00
ROY 2301 T1SB	18.0	30.0	40.0	48.0	57.0	5.50
ROY 2391 T1SB	23.0	39.0	50.0	60.0	71.0	6.00
ROY 2471 T1SB	27.0	47.0	61.0	72.0	86.0	6.50
ROY 2551 T1SB	31.0	55.0	72.0	84.0	91.0	7.00
ROY 2701 T1SB	41.0	70.0	92.0	112	130	8.00
ROY 2911 T1SB	52.0	91.0	117	140	165	9.00
ROY 3111 T1SB	64.0	110	139	165	200	10.0

* Capacity at 1 Bar in liters per minute equals K factor

Coding for nozzle options

Adding the following codes at the end of standard codes as shown in the above tables, specifies nozzle options as follows

SN	NPT Thread
FB	Copper filter, BSPT thread
FN	Copper filter, NPT thread
GB	Stainless filter, BSPT thread

WATER SPRAY NOZZLES**Full cone adjustable nozzles**

Our range of full cone nozzles, series URP, are typically designed to offer design flexibility in fire fighting, applications since offering the advantages of an adjustable flow rate and an adjustable spray angle.

Capacity and spray angle values can be easily preset both at the factory, or right on the installation site.

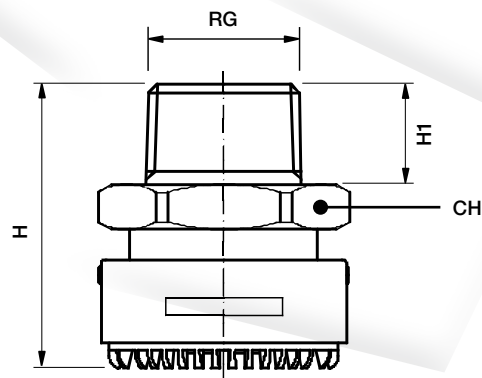
The wide internal passages allow foreign particles up to 1/8 to be in the feed water, while larger particles must be dealt with by means of a filter or screen on the feed line.

Materials

T1 - Brass

T5 - Bronze

V1 - Aluminum



Code	RG inches	Capacity Lpm at pressure (bar)					CH mm	H* mm	H1 mm	OD mm
		1**	3	5	7	10				
URP E070 T1FN	¾"	14.4	24.9	32.1	37.8	45.4	30	45	14	34
URP E071 T1FN		28.7	49.8	64.2	75.6	90.8				
URP E072 T1FN		43.1	74.6	96.3	113	136				
URP H100 T1FN	1"	57.5	99.5	128	151	182	50	70	22	54
URP H102 T1FN		136	236	304	359	430				
URP H103 T1FN		180	311	401	472	568				
URP H150 T1FN	1+ ½"	180	311	401	472	568	50	73	25	54
URP H151 T1FN		251	435	562	661	795				
URP H152 T1FN		359	622	803	945	1135				

* Height dimension for fully extended nozzle - ** Capacity at 1 bar = K factor - + Capacity values in the table shows typical settings for each size

Swivel joints

Swivel joints are designed to accommodate larger size nozzles. The orientation of the unit is fixed by tightening the clamping flanges with bolts. The connection to the feedline is a male thread, while the connection to the nozzle can be male or female.

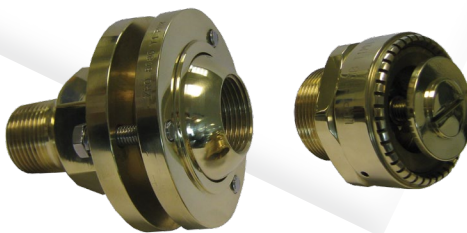
Max operative pressure

LP 9 bar

Materials

B3 - Stainless Steel AISI 316

T1 - Brass



Code	RG inches	RG1 inches	RF inches	L mm	D mm	A degrees	W kg
ZRQ 8080 xx	1"		1"	89	92	40	1.8
ZRQ 8282 xx	1 ¼"		1 ¼"	130			2.1
ZRQ 8482 xx	1 ½"		1 ¼"	133			2.4
ZRR 8282 xx	1 ¼"	1 ¼"		130	92	40	2.2
ZRR 8284 xx	1 ½"	1 ¼"		130			2.2
ZRR 8484 xx	1 ½"	1 ½"		130			2.4
ZRR 8686 xx	2"	2 ½"		203	158	40	8.0
ZRR 8888 xx	2 ½"	2 ½"		229			8.0

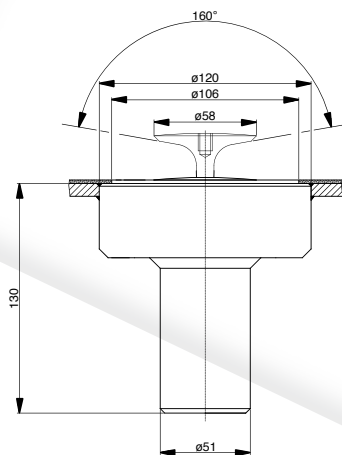
Order code

To have a precise identification of required product, the order code must be completed with this code:

ZRQ 8080 T1 (brass)

Pop-up nozzles

The UMM pop-up nozzles, for cooling and foam-water fire extinguishing system, is specially designed to be fully recessed, which is a key advantage for installation on aircraft carrier's flight deck or other areas that needs surface protection. This nozzle has been tested for assuring operation after being exposed to a jet engine discharge gases for fifteen minutes. Inlet water connection: 1 ¼" gas thread.



Technical characteristics

Material	B31 Stainless steel AISI 316L
Operative pressure	6 bar
Flow rate	90 Lpm
Coverage diameter	5.5 meter

Order code

To have a precise identification of required product, the order code must be completed with this code:

UMM x116 B31	X	B > Coverage angle 160°
		D > Coverage angle 360°

Mushroom nozzles

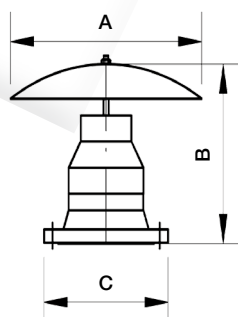
The mushroom type nozzle in the URC series are designed for protection of large size tanks, in oil and petrochemical plants.

Their sturdy construction and large size passages can assure for a very high degree of reliability.

Connection can be either by means of thread, or with flanges according to the most popular standards.

Materials

A1 - Mild steel, epoxy painted
B31 - AISI 316 stainless steel



Code	Flow min At 5 bar	Flow max At 5 bar	A mm	B mm	C inches	Weight kg
URC-M001	200	400	235	180	1½"	3.5
URC-M002	400	650	235	200	2"	5.5
URC-M003	800	1500	235	210	3"	7.5
URC-M004	1500	3200	400	285	4"	14
URC-M006	3200	5500	400	335	6"	20

WATER SPRAY NOZZLES

Full cone spiral nozzles



E type spiral nozzles have been designed to offer a very high resistance to clogging dangers, and at the same time an effective spray distribution for the purpose of performing efficient cooling processes.

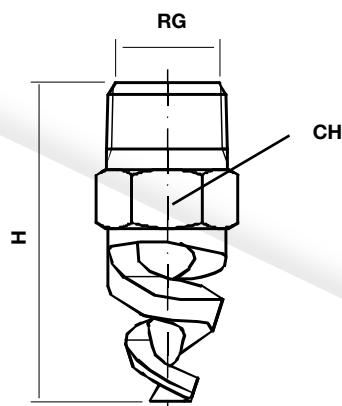
Their design, in fact, does not require an inside swirl component so that the internal liquid passage is totally free, and the jet spray angle value varies very little even with sensible feed pressure changes.

In addition, thanks to their design, the feed pipe size required is consistently smaller than the one required by conventional swirl nozzles, with the advantages of lower weight and cost.

Materials

B31 - AISI 316L stainless steel

T1 - Brass



	Code	RG	DO	DM	Capacity Lpm at pressure (bar)				CH	H
		inches	mm	mm	1*	3	5	7	mm	mm
90°	ECU 2230 T1SB	3/8"	4,8	3,2	13,6	23,5	30,3	42,8	19	48
	ECU 2317 T1SB		5,6		18,3	31,2	40,9	57,8		
	ECU 2410 T1SB		6,4		24,0	41,5	53,6	75,8		
	ECU 2640 T1SB		7,9		37,7	64,6	83,0	117		
	EDU 2940 T1SB	1/2"	9,5	4,7	54,5	94,4	122	172	22	64
	EDU 3128 T1SB		11,1		74,5	129	166	235		
	EEU 3165 T1SB	3/4"	12,7	4,7	92,0	165	213	301	27	70
	EFU 3260 T1SB	1"	15,9	6,3	152	253	339	479	34	92
	EFU 3372 T1SB		19,0		215	372	480	679		
120°	ECW 2156 T1SB	3/8"	4,0	3,2	9,0	15,6	20,1	28,4	19	48
	ECW 2230 T1SB		4,8		13,5	23,5	30,3	42,8		
	ECW 2317 T1SB		5,6		18,3	31,7	40,9	57,8		
	ECW 2410 T1SB		6,4		24,0	41,5	53,6	75,8		
	ECW 2640 T1SB		7,9		37,0	64,6	83,0	117		
	EDW 2940 T1SB	1/2"	9,5	4,7	54,5	94,4	122	172	22	64
	EDW 3104 T1SB		10,5		60,0	104	134	190		
	EDW 3128 T1SB		11,1		74,5	129	166	235		
	EEW 3165 T1SB	3/4"	12,7	4,7	92,0	165	213	301	27	70
	EFW 3260 T1SB	1"	15,9	6,3	152	263	339	479	34	92
	EFW 3372 T1SB		19,0		215	372	480	379		

* Capacity at 1 bar = K factor