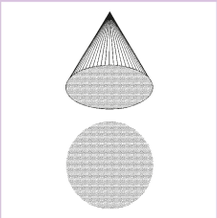


Ugelli a cono pieno
Full cone spray nozzles

E - EE - ED - EED - F - FF - FD - FG - FGA - BIM - FFZ

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno con distribuzione uniforme su tutta la superfice e buona nebulizzazione a tutte le pressioni.

COSTRUZIONE
I tipi E, EE, ED e EED sono costruiti in tre pezzi con testina e diffusore interno rimovibili per facilitare le eventuali operazioni di pulizia. I tipi F, FF, FD, FG, FGA, BIM e FFZ sono costruiti in due pezzi con diffusore interno fisso montato a pressione.
I modelli ED, EED e FD sono appositamente disegnati per montaggio a parete e consigliati in tutti quei casi dove le tubazioni di collegamento devono restare all'esterno rispetto alla zona dove gli ugelli stessi devono spruzzare.
La punta di spruzzo tipo FG è fornita con codici compresi tra 1 e 10 ed è perfettamente intercambiabile con le punte della serie R1. E' montata mediante l'uso dei corpi e ghiere della stessa serie. (Vedi pagg.112÷116)
Il tipo FGA è fornito con codici compresi tra 1 e 22 ed ha attacchi femmina da 1/4" e da 3/8" con filettatura Gas cilindrica (BSPP - UNI 338).
Tutti gli altri ugelli hanno filettatura Gas conica (BSPT - UNI 339). Altre filettature: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio di minerali, metalli, fumi, frutta e verdura. Raffreddamenti industriali (colate continue), protezione antincendio, abbattimento schiume, lavaggio aria e gas, ecc.

SPRAY CHARACTERISTICS
These offer a full cone spray pattern uniformity over the entirely covered surface area and a good atomizing effect at all pressures.

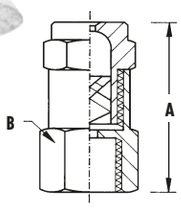
CONSTRUCTION
The E, EE, ED and EED series exist in three-piece units composed of a body, an orifice cap and an internal vane with the last two parts being both removable in order to facilitate eventual nozzle cleaning.
The F, FF, FD, FG, FGA, BIM and FFZ series are built as two-piece units with a fixed internal vane.
The ED, EED and FD models are purposely designed for wall-mounting such as all cases in which both the spray nozzle and its connecting tubes should remain out of the spraying zone.
The FG tip models are available with their code numbers ranging from 1 to 10 as well as perfectly interchangeable with the R1 series of spray tips, using the same bodies and their respective accessories. (See pages 112÷116)
The FGA version supplied within the code-number range from 1 to 22, has exclusively female 1/4" and 3/8" Gas parallel (BSPP - UNI 338) thread size. All the other nozzle types have a Gas tapered (BSPT - UNI 339) threading. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are obtainable under special request.

STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316, PVC. Other different product materials are supplied upon specific request. (See page 3 for list)

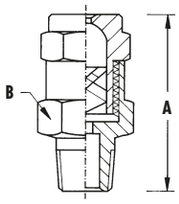
TYPICAL APPLICATIONS
Mineral, metal, smoke, fruit and vegetable washing, industrial cooling (continuous casting), fire protection, foam control, air and gas washing, etc.

Tipi - Types

E



EE



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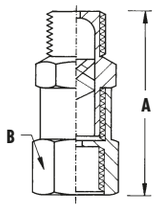
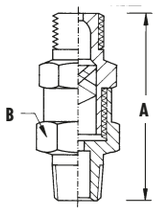
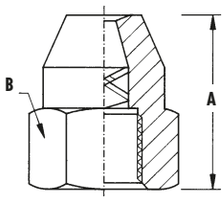


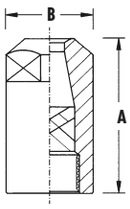
EED



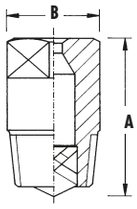
FGA



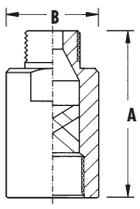
F



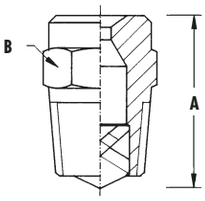
FF



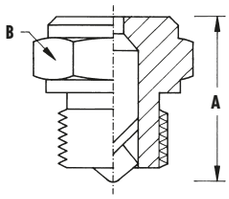
FD



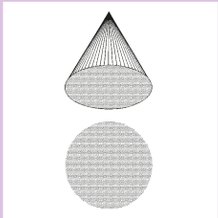
BIM



FFZ



Ugelli a cono pieno
Full cone spray nozzles



E - EE - ED - EED - F - FF - FD - FG - FGA - BIM - FFZ

Tabella delle portate – Capacity chart

Ugello - *Nozzle*				Orifizio	Pass. libero	Pressione - *Pressure (Bar)*												Angolo di spruzzo *Spray angle*		
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*	*Orifice* ∅ Nom. mm	*Max free pas.* ∅ Nom. mm	0,2	0,5	0,7	1	1,5	2	3	4	5	6	7	10	0,5Bar	1,5Bar	5Bar
						Portata - *Capacity (l/min)*														
1/8″ 1/4″ 3/8″	E FGA FGA	EE-FF-BIM-FFZ FF-BIM-FFZ	1	0,79	0,64	0,21	0,33	0,38	0,45	0,54	0,62	0,75	0,85	0,95	1,03	1,10	1,30	50°	58°	53°
			1,5	1,19	0,64	0,32	0,49	0,57	0,67	0,81	0,93	1,12	1,28	1,42	1,54	1,66	1,95	52°	65°	59°
			2	1,19	1,02	0,43	0,65	0,76	0,90	1,08	1,24	1,49	1,71	1,89	2,06	2,21	2,60	43°	50°	46°
			3	1,59	1,02	0,64	0,98	1,14	1,35	1,63	1,86	2,24	2,56	2,84	3,09	3,31	3,91	52°	65°	59°
			3,5	1,59	1,27	0,75	1,14	1,33	1,57	1,90	2,17	2,61	2,98	3,31	3,60	3,87	4,56	43°	50°	46°
			4	1,98	1,02	0,85	1,31	1,52	1,80	2,17	2,48	2,99	3,41	3,78	4,11	4,42	5,21	77°	84°	79°
			5	1,98	1,27	1,07	1,63	1,91	2,25	2,71	3,10	3,73	4,26	4,73	5,14	5,52	6,51	52°	65°	59°
			6	2,38	1,27	1,28	1,96	2,29	2,70	3,25	3,71	4,48	5,12	5,67	6,17	6,63	7,81	69°	74°	68°
1/4″ 3/8″	E-FGA FGA	EE-FF-BIM-FFZ FF-BIM-FFZ	3	1,59	1,02	0,64	0,98	1,14	1,35	1,63	1,86	2,24	2,56	2,84	3,09	3,31	3,91	52°	65°	59°
			3,5	1,59	1,27	0,75	1,14	1,33	1,57	1,90	2,17	2,61	2,98	3,31	3,60	3,87	4,56	43°	50°	46°
			5	1,98	1,27	1,07	1,63	1,91	2,25	2,71	3,10	3,73	4,26	4,73	5,14	5,52	6,51	52°	65°	59°
			6,5	2,38	1,59	1,39	2,12	2,48	2,92	3,52	4,02	4,85	5,54	6,14	6,68	7,18	8,46	45°	50°	46°
			8	2,58	1,59	1,71	2,61	3,05	3,60	4,34	4,95	5,97	6,82	7,56	8,23	8,83	10,42	52°	65°	60°
			10	2,78	1,59	2,14	3,26	3,81	4,49	5,42	6,19	7,47	8,53	9,45	10,28	11,04	13,02	58°	67°	61°
			12,5	3,18	1,59	2,67	4,08	4,76	5,62	6,78	7,74	9,33	10,66	11,82	12,86	13,80	16,28	69°	74°	68°
3/8″	E-FGA	EE-FF-BIM-FFZ	6,5	2,38	1,59	1,39	2,12	2,48	2,92	3,52	4,02	4,85	5,54	6,14	6,68	7,18	8,46	45°	50°	46°
			9,5	2,58	2,38	2,03	3,10	3,62	4,27	5,15	5,88	7,09	8,10	8,98	9,77	10,49	12,37	45°	50°	46°
			10	2,78	1,59	2,14	3,26	3,81	4,49	5,42	6,19	7,47	8,53	9,45	10,28	11,04	13,02	58°	67°	61°
			12,5	3,18	1,59	2,67	4,08	4,76	5,62	6,78	7,74	9,33	10,66	11,82	12,86	13,80	16,28	69°	74°	68°
			15	3,57	2,38	3,21	4,89	5,72	6,74	8,13	9,29	11,20	12,79	14,18	15,43	16,56	19,53	64°	67°	61°
			20	3,97	2,78	4,27	6,53	7,62	8,99	10,84	12,38	14,93	17,05	18,91	20,57	22,09	26,04	76°	80°	73°
			22	4,37	2,78	4,70	7,18	8,39	9,89	11,92	13,62	16,43	18,76	20,80	22,63	24,30	28,65	87°	90°	92°
1/2″	E	EE-FF-BIM-FFZ	16	3,57	3,18	3,42	5,22	6,10	7,19	8,67	9,91	11,95	13,64	15,13	16,45	17,67	20,83	48°	50°	46°
			25	4,76	3,18	5,34	8,16	9,53	11,24	13,55	15,48	18,67	21,32	23,63	25,71	27,61	32,55	64°	67°	61°
			32	5,16	3,57	6,84	10,44	12,20	14,38	17,34	19,81	23,89	27,29	30,25	32,91	35,34	41,67	72°	75°	68°
			40	6,35	3,57	8,55	13,05	15,25	17,98	21,68	24,76	29,86	34,11	37,81	41,14	44,17	52,09	88°	91°	83°
			50	6,75	3,97	10,68	16,31	19,06	22,47	27,10	30,95	37,33	42,64	47,27	51,42	55,22	65,11	91°	94°	86°
3/4″	F	FF-BIM-FFZ	2,5	4,76	4,37	6,31	9,62	11,23	13,23	15,94	18,20	21,93	25,03	27,74	30,16	32,38	38,15	48°	50°	46°
			4	6,35	4,37	10,10	15,39	17,96	21,17	25,51	29,12	35,09	40,05	44,38	48,26	51,81	61,05	67°	70°	63°
			7	9,53	5,16	17,67	26,93	31,44	37,04	44,64	50,95	61,40	70,09	77,66	84,46	90,66	106,83	89°	92°	84°
1″	F	FF-BIM-FFZ	4,2	5,95	5,56	10,60	16,16	18,86	22,23	26,78	30,57	36,84	42,05	46,60	50,68	54,40	64,10	48°	50°	46°
			7	8,33	5,56	17,67	26,93	31,44	37,04	44,64	50,95	61,40	70,09	77,66	84,46	90,66	106,83	67°	68°	62°
			8	9,53	5,56	20,19	30,78	35,93	42,33	51,01	58,23	70,17	80,10	88,76	96,52	103,62	122,09	70°	71°	65°
			10	11,91	5,56	25,24	38,47	44,91	52,92	63,77	72,79	87,71	100,13	110,95	120,65	129,52	152,61	75°	78°	71°
			12	11,91	6,35	30,29	46,16	53,89	63,50	76,52	87,35	105,26	120,15	133,14	144,79	155,43	183,14	89°	92°	84°

Installazioni tipiche - Typical installations

Ugello montato con fascetta
Nozzle mounted with split-eyelet

Ugello montato con giunto orientabile
Nozzle mounted with adjustable ball joint

EE con filtro
EE with strainer

Serie - FG - *Series*
Vedi pagina seguente
See the following page

Per ordinare - To order

Ugelli completi, specificare: - *Complete nozzles, please specify:*

1/4″	EE	10	SS316	=	1/4EE10SS316
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

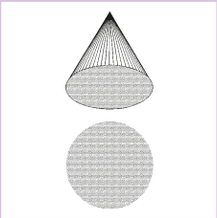
Solo punte di spruzzo, specificare: - *For only tips, please specify:*

FG	10	BR	=	FG10BR
Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

Dimensioni max ingombro - Max dimensions

Tipo ugello *Nozzle type*	Attacco - *Pipe connection*											
	1/8″		1/4″		3/8″		1/2″		3/4″		1″	
	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm
E	28	14 hex	37	17 hex	39	22 hex	48	25 hex				
ED	35	14 hex	41	17 hex	46	22 hex	57	25 hex				
FGA			30	22 hex	30	22 hex						
F									55	33 dia	68	38 dia
FD									55	33 dia	69	38 dia
RFG	49	21 hex	49	21 hex	49	21 hex	49	25 hex				
EE	30	14 hex	37	17 hex	39	22 hex	48	25 hex				
EED	37	14 hex	43	17 hex	47	22 hex	57	25 hex				
FF	23	13 dia	23	14 dia	24	17 dia	29	21 dia	39	27 dia	51	33 dia
BIM	20	12 hex	23	14 hex	25	17 hex	32	22 hex	36	27 hex	50	38 hex
FFZ	15	14 hex	18	17 hex	20	19 hex	27	27 hex	28	32 hex	28	41 hex
RRFG	49	21 hex	49	21 hex	49	21 hex	49	21 hex				

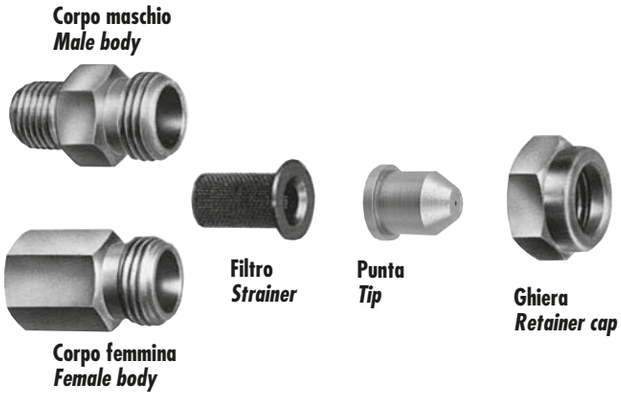


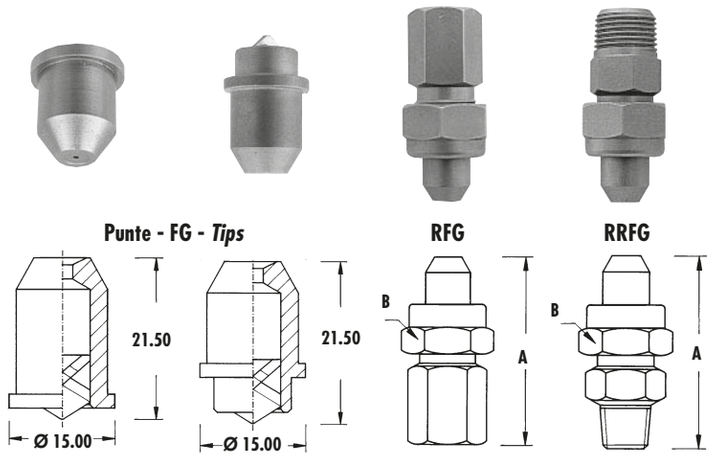
Ugelli a cono pieno

Full cone spray nozzles

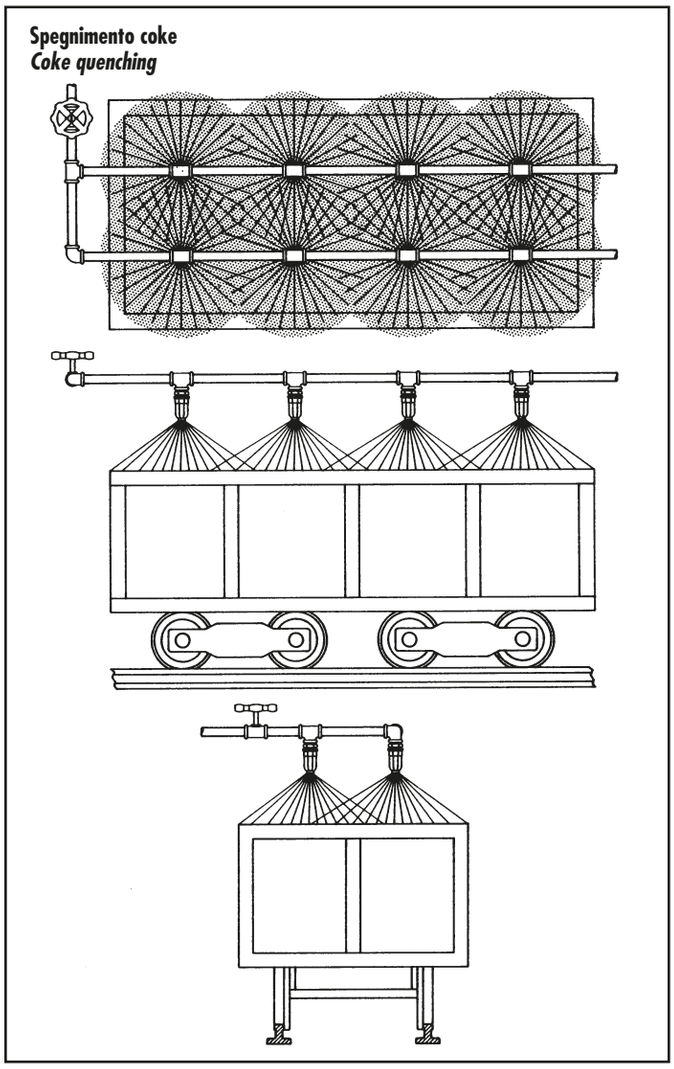
E - EE - ED - EED - F - FF - FD - FG - FGA - BIM - FFZ

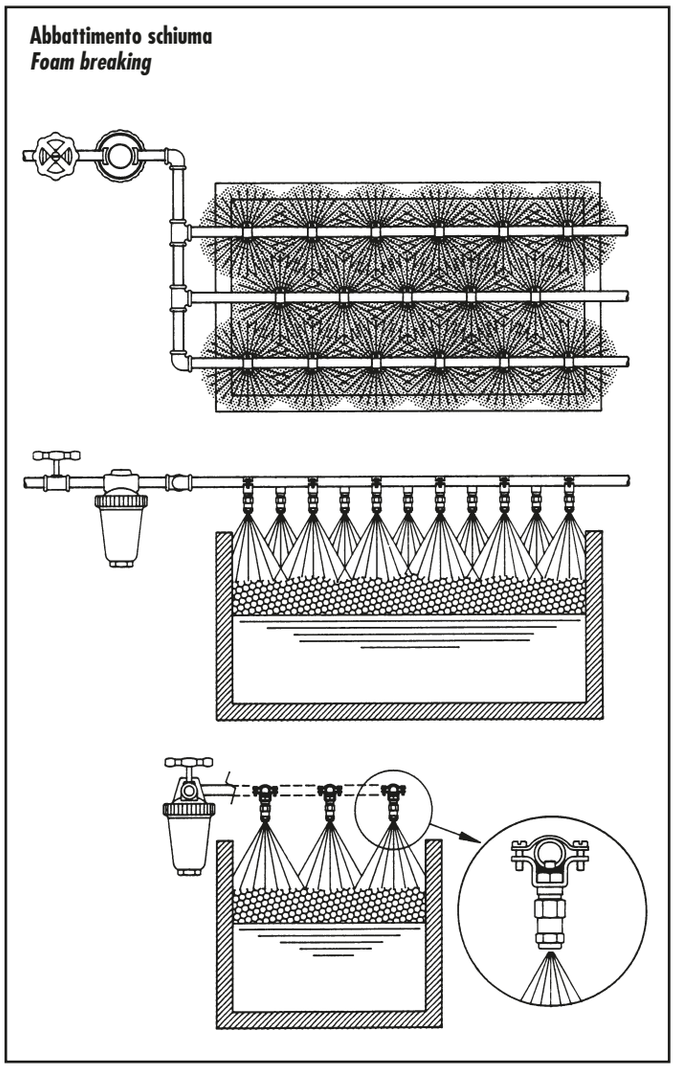
Componenti serie - FG - Series components





Applicazioni tipiche - Typical applications





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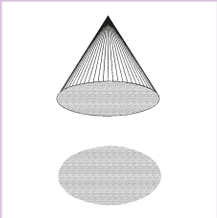
Ugelli a cono pieno con getto ovale
Full cone ellipse-shaped spray nozzles



EOV - EEOV

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno a forma ovale, buona nebulizzazione e distribuzione uniforme su tutta la superfice coperta. La larghezza del getto è circa la metà della sua lunghezza.

COSTRUZIONE
Realizzati in tre pezzi con testina di spruzzo e diffusore rimovibili per facilitare le operazioni di pulizia e sostituzione senza dover smontare il corpo dell'ugello. I corpi ugello hanno attacco da 3/8" con filettatura Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio prodotti, raffreddamento intensivo di superfici delimitate da rulli di trascinamento (rampe per il raffreddamento delle billette sugli impianti di colata continua), ecc.

SPRAY CHARCTERISTICS
These produce a full cone ellipse-shaped spray pattern uniformity throughout the covered surface area with a good atomizing property. The spray length is roughly twice as much as the spray width.

CONSTRUCTION
They are three-piece units with both orifice cap and internal vane being removable to guarantee the simplest eventual nozzle cleaning. The orifice cap and its appropriate internal vane can be substituted together without un-fixing the body. All the above described nozzles have Gas tapered (BSPT - UNI 339) threading. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are supplied upon special request.

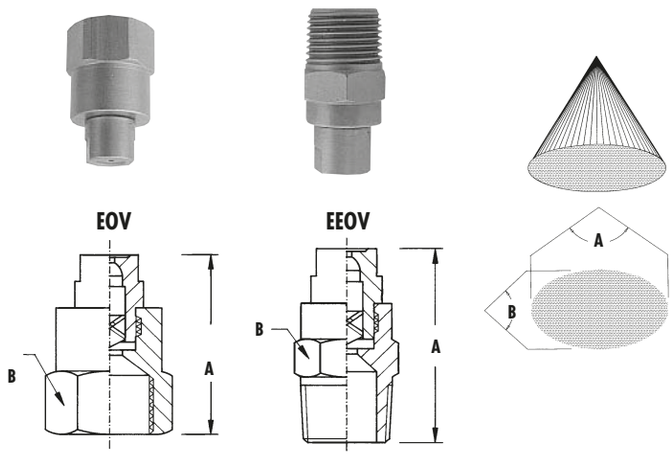
STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC. Different product materials are obtainable upon specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Product washing, intensive cooling on well-defined surface areas bordered by rotating feed rollers (billet cooling ramps in continuous casting plants), etc.

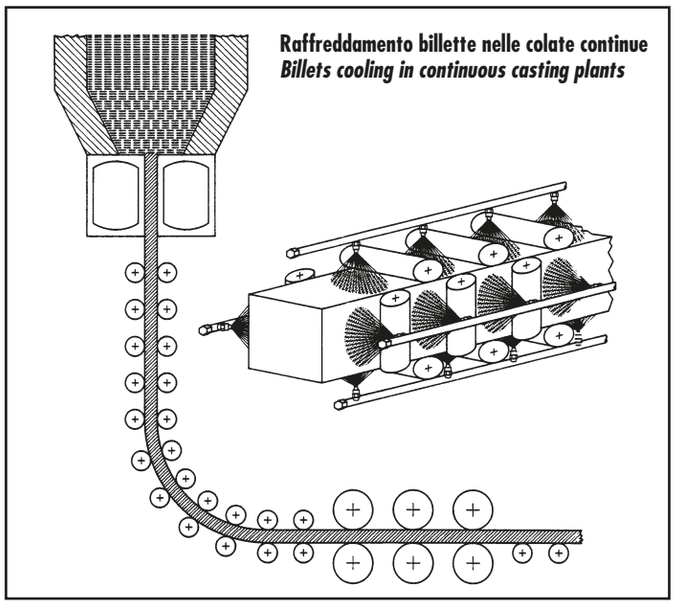
Tabella delle portate – Capacity chart

Ugello - *Nozzle*				Orifizio *Orifice*	Pass. libero *Free pas.*	Pressione - *Pressure* (Bar)										Angolo di spruzzo - *Spray angle*							
Attacco *Pipe con.*	Femmina *Female*	Maschio *Male*	Codice *Code*			1	1,5	2	2,5	3	4	5	6	7	10	1 Bar		3 Bar		7 Bar		10 Bar	
				Ø Nom. mm	Ø Nom. mm	Portata - *Capacity (l/min)*										A	B	A	B	A	B	A	B
3/8"	EOV	EEOV	5	1,98	1,02	2,20	2,65	3,03	3,35	3,65	4,16	4,61	5,02	5,39	6,35	104°	66°	95°	60°	86°	52°	83°	47°
			6,5	2,38	1,27	2,92	3,52	4,02	4,45	4,84	5,52	6,12	6,66	7,15	8,42	103°	64°	95°	60°	85°	50°	81°	45°
			8	2,54	1,27	3,64	4,38	5,00	5,55	6,03	6,88	7,63	8,30	8,90	10,49	102°	64°	95°	60°	84°	50°	80°	45°
			9	2,78	1,27	4,13	4,98	5,68	6,30	6,85	7,82	8,66	9,42	10,11	11,92	103°	65°	95°	60°	86°	51°	81°	46°
			10	2,78	1,59	4,49	5,41	6,18	6,85	7,44	8,50	9,42	10,24	10,99	12,95	104°	65°	95°	60°	86°	51°	81°	46°

Tipi - Types



Applicazione tipica - Typical application



Per ordinare - To order

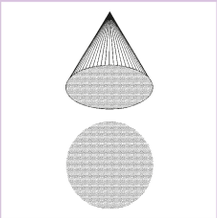
Specificare: - *Specify:*

3/8"	EOV	8	BR	=	3/8EOV8BR
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

* **Vedi Pag. 3 - *See page 3 for list***

Dimensioni max ingombro
Max dimensions

Attacco *Pipe connection*	Ugello tipo - *Nozzle type*			
	EOV		EEOV	
	A mm	B mm	A mm	B mm
3/8"	34	21 hex	39	21 hex



Ugelli a cono pieno per grandi portate

Large capacity full cone spray nozzles

FR - FFR - F - FF- FFZ

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno con grandi portate, distribuzione uniforme su tutta la superfice coperta a tutte le pressioni e gocce piuttosto grosse specialmente alle pressioni più basse.

COSTRUZIONE
Il tipo F è composto da due pezzi con un diffusore interno e nelle versioni in metallo è ricavato da fusione. Gli ugelli FF e FFZ, anch'essi composti da due pezzi, sono ricavati da barra ed hanno un diffusore interno fisso montato a pressione. I modelli FR e FFR sono ricavati da un'unica fusione che comprende anche il diffusore interno e, quindi, sono costituiti da un singolo pezzo. Tutti i sopraelencati ugelli vengono forniti con filettatura standard Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPT - UNI 338), ecc. vengono fornite su specifica richiesta.

MATERIALI STANDARD
Il tipi F, FR e FFR vengono forniti in fusione di acciaio inox AISI 316. Il tipo F in PVC viene ricavato da barra. Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC per i tipi FF e FFZ. Altri materiali vengono forniti a richiesta: (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio di minerali, raffreddamento e spegnimento coke, abbattimento polveri, impianti per la protezione e lo spegnimento incendi, ecc.

SPRAY CHARACTERISTICS
These produce a much higher flow rate full cone spray pattern with a uniform distribution over the entirely covered surface area at all pressures as well as relatively big droplet sizes especially at very low pressures.

CONSTRUCTION
The F nozzle series are two-piece units with internal removable vane, whereas its metal-made versions are exclusively cast-types. The FF and FFZ models are also though two-piece units but bar stock types with fixed internal vanes. Instead, the FR and FFR series are single piece units, simultaneously cast together with their respective internal vanes.
All the above mentioned nozzle types are supplied with Gas tapered (BSPT - UNI 339) threading. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are available upon special request.

STANDARD MATERIALS
Cast stainless steel AISI 316 and PVC bar-stock types for only F nozzle series, brass, stainless steel AISI 303, stainless steel AISI 316 and PVC for only both FF and FFZ, stainless steel AISI 316 for only both FR and FFR. Other different product materials are obtainable under specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Mineral washing, coke cooling and extinguishing, dust control, deluging, fire protection and quenching plants, etc.

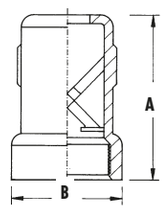
Tabella delle portate – Capacity chart

Ugello - *Nozzle*				Orifizio *Orifice*	Pressione - *Pressure (Bar)*														
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*		0,1	0,2	0,3	0,5	0,7	1	1,5	2	2,5	3	3,5	4	5	6	7
				∅ Nom. mm	Portata - *Capacity (l/min)*														
2″	FR	FFR	9545	28,97	122,18	167,74	201,91	255,04	297,45	350,15	421,47	480,73	532,37	578,65	620,91	660,00	730,90	794,45	852,47
			9560	36,12	162,90	223,65	269,21	340,05	396,60	466,86	561,96	640,97	709,82	771,54	827,88	880,01	974,54	1059,27	1136,62
2 1/2″	FR	FFR	9570	36,51	190,05	260,93	314,08	396,72	462,70	544,67	655,62	747,80	828,13	900,12	965,86	1026,67	1136,96	1235,81	1326,06
			9590	44,85	244,35	335,48	403,82	510,07	594,91	700,29	842,94	961,45	1064,73	1157,30	1241,82	1320,01	1461,81	1588,90	1704,94

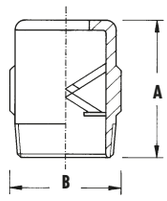
Dimensioni max ingombro
Max dimensions

Attacco *Pipe connection*	Ugello tipo - *Nozzle type*			
	FR		FFR	
	A mm	B mm	A mm	B mm
2″	113	75 dia	83	60 dia
2 1/2″	139	88 dia	102	73 dia

FR



FFR



Per ordinare - To order

Specificare: - *Specify:*

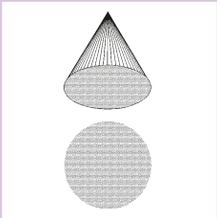
2″	FR	9560	SS316	=	2FR9560SS316
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

Accessori per il montaggio - Mounting fittings

Ugelli a cono pieno per grandi portate

Large capacity full cone spray nozzles

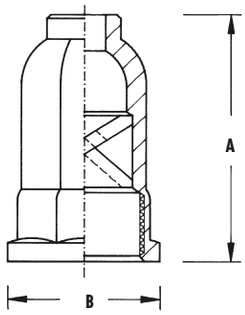


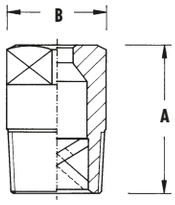
FR - FFR - F - FF - FFZ

Tabella delle portate - F - FF - FFZ - Capacity chart

Ugello - *Nozzle*				Orifizio *Orifice*	Pass. libero *Max free pas.*	Pressione - *Pressure (Bar)*													Angolo di spruzzo *Spray angle*		
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*	∅ Nom. mm	∅ Nom. mm	0,2	0,5	0,7	1	1,5	2	2,5	3	4	5	6	7	10	0,5Bar	1,5Bar	4Bar
						Portata - *Capacity (l/min)*															
1¼″	F	FF-FFZ	6	7,54	6,35	15,17	23,08	26,93	31,71	38,17	43,55	48,23	52,43	59,82	66,25	72,02	77,29	91,00	48°	50°	46°
			10	9,53	6,35	25,29	38,47	44,88	52,84	63,62	72,58	80,39	87,39	99,69	110,42	120,03	128,81	151,67	64°	67°	61°
			12	10,72	6,35	30,35	46,17	53,86	63,41	76,35	87,10	96,47	104,87	119,63	132,50	144,04	154,58	182,00	66°	70°	63°
			14	12,30	6,35	35,40	53,86	62,83	73,98	89,07	101,61	112,55	122,35	139,57	154,59	168,05	180,34	212,33	77°	80°	73°
			20	15,08	7,94	50,58	76,94	89,76	105,68	127,25	145,16	160,78	174,78	199,39	220,84	240,07	257,63	303,33	90°	93°	85°
1½″	F	FF-FFZ	10	9,53	8,73	25,29	38,47	44,88	52,84	63,62	72,58	80,39	87,39	99,69	110,42	120,03	128,81	151,67	48°	50°	46°
			16	12,70	8,73	40,46	61,55	71,81	84,55	101,80	116,13	128,62	139,82	159,51	176,67	192,05	206,10	242,67	72°	74°	67°
			20	14,29	8,73	50,58	76,94	89,76	105,68	127,25	145,16	160,78	174,78	199,39	220,84	240,07	257,63	303,33	74°	76°	69°
			30	18,26	10,32	75,86	115,41	134,64	158,53	190,87	217,74	241,17	262,17	299,08	331,26	360,10	386,44	455,00	91°	94°	86°
2″	F	FF-FFZ	17	12,70	11,11	42,99	65,40	76,30	89,83	108,16	123,39	136,66	148,56	169,48	187,71	204,06	218,98	257,83	49°	50°	46°
			30	17,46	11,11	75,86	115,41	134,64	158,53	190,87	217,74	241,17	262,17	299,08	331,26	360,10	386,44	455,00	72°	74°	67°
			35	19,05	11,11	88,51	134,65	157,08	184,95	222,68	254,03	281,36	305,86	348,93	386,47	420,12	450,85	530,83	75°	77°	70°
			40	21,03	11,11	101,15	153,88	179,52	211,37	254,49	290,33	321,56	349,56	398,78	441,68	480,14	515,25	606,67	78°	80°	73°
			50	23,81	14,29	126,44	192,36	224,40	264,21	318,12	362,91	401,95	436,95	498,47	552,10	600,17	644,07	758,33	83°	85°	78°
			60	28,58	14,29	151,73	230,83	269,28	317,05	381,74	435,49	482,34	524,34	598,17	662,52	720,20	772,88	910,00	98°	100°	91°
2½″	F	FF-FFZ	25	15,08	14,29	63,22	96,18	112,20	132,11	159,06	181,45	200,97	218,47	249,24	276,05	300,08	322,03	379,17	49°	50°	46°
			50	22,23	14,29	126,44	192,36	224,40	264,21	318,12	362,91	401,95	436,95	498,47	552,10	600,17	644,07	758,33	72°	74°	67°
			60	24,61	14,29	151,73	230,83	269,28	317,05	381,74	435,49	482,34	524,34	598,17	662,52	720,20	772,88	910,00	76°	78°	71°
			70	28,58	14,29	177,02	269,30	314,16	369,90	445,36	508,07	562,73	611,73	697,86	772,94	840,24	901,69	1.061,67	79°	82°	75°
			80	28,58	17,46	202,30	307,77	359,04	422,74	508,98	580,65	643,12	699,12	797,55	883,36	960,27	1.030,50	1.213,34	86°	88°	80°
			90	31,75	17,46	227,59	346,24	403,92	475,58	572,61	653,23	723,51	786,51	897,25	993,78	1.080,31	1.159,32	1.365,00	95°	97°	88°
3″	F	FF-FFZ	42	19,05	17,46	106,21	161,58	188,49	221,94	267,22	304,84	337,64	367,04	418,72	463,76	504,14	541,01	637,00	49°	50°	46°
			80	27,78	17,46	202,30	307,77	359,04	422,74	508,98	580,65	643,12	699,12	797,55	883,36	960,27	1.030,50	1.213,34	81°	84°	76°
			90	30,16	17,46	227,59	346,24	403,92	475,58	572,61	653,23	723,51	786,51	897,25	993,78	1.080,31	1.159,32	1.365,00	86°	89°	81°
			100	32,54	17,46	252,88	384,71	448,80	528,42	636,23	725,81	803,90	873,90	996,94	1.104,20	1.200,34	1.288,13	1.516,67	92°	95°	87°
			120	34,93	20,64	303,46	461,65	538,56	634,11	763,48	870,98	964,68	1.048,67	1.196,33	1.325,04	1.440,41	1.545,76	1.820,00	102°	105°	93°

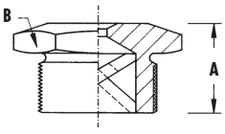
Tipi - Types





FF

FFZ



F **Da fusione** ***Cast type***

Per ordinare - To order

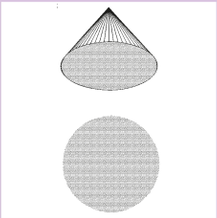
Specificare: - *Specify:*

2″	F	50	SS316	=	2F50SS316
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

Dimensioni max ingombro - Max dimensions

Attacco *Pipe connection*	Tipo ugello - *Nozzle type*					
	F		FF		FFZ	
	A mm	B mm	A mm	B mm	A mm	B mm
1¼″	88	53	75	42	30	50 hex
1½″	103	59	85	48	35	60 hex
2″	135	78	106	60	44	70 dia
2½″	175	87	128	75	52	85 dia
3″	196	105	153	90	60	100 dia



Ugelli a cono pieno con angolo ampio
Wide angle full cone spray nozzles

EW - EEW - FW - FFW - FGW - BNM - FFZW

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno, distribuzione uniforme su tutta la superfice, angolo di dispersione ampio e buona nebulizzazione.

COSTRUZIONE
I tipi EW e EEW sono costruiti in tre pezzi con testina di spruzzo e diffusore interno rimovibili per rendere più semplici eventuali operazioni di pulizia. I tipi FW, FFW, FGW, BNM e FFZW sono composti da due pezzi con diffusore interno fisso montato a pressione. Le versioni in metallo del tipo FW per grandi portate con attacchi da 1¹/₄" e maggiori sono ricavate da fusione ed hanno diffusori interni rimovibili.
La punta di spruzzo FGW è disponibile con codice da 2,8 a 14 ed è perfettamente intercambiabile con tutte le punte della serie R1. (Vedi pagg. 112÷116)
Forniti con filettatura standard Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Il modello FW per grandi portate e attacco da 1¹/₄" o maggiore è fornito in fusione di acciaio inox AISI 316 e nelle versioni in PVC viene ricavato da barra.
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC per tutti gli altri tipi.
Materiali diversi vengono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Impianti antincendio, raffreddamento, abbattimento polveri, controllo schiume, lavaggi in genere, processi chimici e industriali, raffreddamento e spegnimento coke, ecc.

SPRAY CHARACTERISTICS
These offer a full cone wide angle spray pattern with coverage uniformity over the entire surface area and a good atomizing effect.

CONSTRUCTION
The EW and EEW series are three-piece units constituted by a body, an orifice cap and an internal vane with the last two components being both removable so as to simplify eventual nozzle cleaning. The FW, FFW, FGW, BNM and FFZW models are two-piece units with fixed internal vanes since these vanes are pressure-mounted. The large capacity metal-made FW nozzle types with 1¹/₄" threaded size and over, are exclusively cast types with internal removable vanes.
The FGW tip models are available with their code numbers ranging from 2,8 to 14 as well as interchangeable with the spray tips of the R1 series. (See pages 112÷116)
All the above stated nozzles are Gas tapered (BSPT - UNI 339). Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are supplied upon special request.

STANDARD MATERIALS
Cast stainless steel AISI 316 and PVC bar-stock types for only large capacity (1¹/₄" and over) FW models. Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC for all the other nozzle types. Different product materials are obtainable under specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Fire protection plants, cooling, dust control, foam control, multi-type washing, industrial and chemical processes, coke cooling and extinguishing, etc.

Tipi - Types

FW — Da fusione / *Cast type*

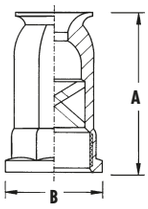
EW

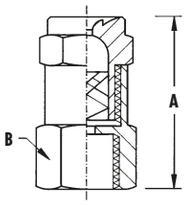
EEW

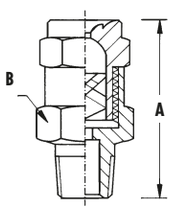
FW

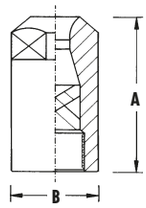
FFW

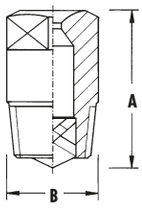
BNM

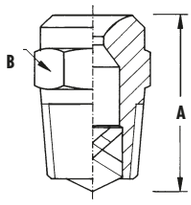












Per ordinare - To order

Ugelli completi, specificare: - *Complete nozzles, please specify:*

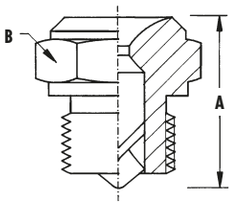
3/4''	FF	6W	BR	=	3/4FF6WBR
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

Solo punte di spruzzo, specificare: - *For only tips, please specify:*

FG	8W	SS	=	FG8WSS
Tipo *Type*	Codice *Code*	Materiale * *Material **		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

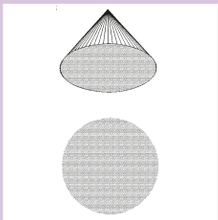
FFZW



Costruzioni speciali - Specially made nozzles

Ugelli a cono pieno con angolo ampio

Wide angle full cone spray nozzles



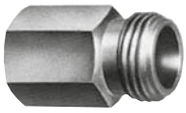
EW - EEW - FW - FFW - FGW - BNM - FFZW

Tabella delle portate - Capacity chart

Ugello - *Nozzle*				Orifizio *Orifice*	Pass. libero *Max free pas.*	Pressione - *Pressure (Bar)*											Angolo di spruzzo *Spray angle*			
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*	∅ Nom. mm	∅ Nom. mm	0,3	0,5	0,7	1	1,5	2	2,5	3	4	5	6	0,3Bar	0,7Bar	3Bar	5Bar
						Portata - *Capacity (l/min)*														
1/8″ 1/4″	E	EE-FF-BNM-FFZ FF-BNM-FFZ	2,8 W	1,59	1,02	0,73	0,92	1,07	1,25	1,49	1,70	1,87	2,03	2,31	2,54	2,76	90°	120°	120°	102°
			4,3 W	1,98	1,02	1,13	1,41	1,64	1,92	2,29	2,61	2,88	3,12	3,54	3,91	4,24	98°	120°	120°	102°
			5,6 W	2,38	1,02	1,47	1,84	2,13	2,50	2,99	3,39	3,75	4,06	4,61	5,09	5,52	98°	120°	120°	102°
			8 W	2,38	1,27	2,10	2,63	3,05	3,57	4,27	4,85	5,35	5,80	6,59	7,27	7,88	98°	120°	120°	103°
1/4″	E	EE-FF-BNM-FFZ	10 W	2,78	1,27	2,62	3,28	3,81	4,46	5,34	6,06	6,69	7,25	8,23	9,09	9,85	112°	120°	120°	103°
			12 W	3,18	1,27	3,14	3,94	4,57	5,35	6,40	7,27	8,03	8,70	9,88	10,90	11,82	114°	120°	120°	103°
			14 W	3,57	1,59	3,67	4,60	5,34	6,25	7,47	8,49	9,36	10,15	11,53	12,72	13,79	114°	120°	120°	103°
3/8″	E	EE-FF-BNM-FFZ	17 W	3,97	1,59	4,45	5,58	6,48	7,58	9,07	10,30	11,37	12,33	14,00	15,45	16,74	114°	120°	120°	103°
			20 W	4,37	2,38	5,24	6,57	7,62	8,92	10,67	12,12	13,38	14,50	16,47	18,17	19,70	114°	120°	121°	104°
			24 W	4,76	2,38	6,29	7,88	9,15	10,71	12,81	14,55	16,05	17,40	19,76	21,81	23,64	114°	120°	121°	104°
			27 W	5,16	2,78	7,08	8,87	10,29	12,05	14,41	16,36	18,06	19,58	22,23	24,54	26,59	114°	120°	121°	106°
1/2″	E	EE-FF-BNM-FFZ	30 W	5,56	2,78	7,86	9,85	11,43	13,38	16,01	18,18	20,07	21,75	24,70	27,26	29,55	114°	120°	121°	108°
			35 W	5,95	3,18	9,17	11,49	13,34	15,62	18,68	21,21	23,41	25,38	28,82	31,80	34,47	114°	120°	121°	108°
			40 W	6,35	3,18	10,48	13,14	15,24	17,85	21,35	24,24	26,76	29,00	32,93	36,35	39,40	114°	120°	121°	108°
			45 W	6,35	3,57	11,79	14,78	17,15	20,08	24,02	27,27	30,10	32,63	37,05	40,89	44,32	114°	120°	121°	110°
			50 W	6,75	3,97	13,10	16,42	19,05	22,31	26,69	30,30	33,45	36,25	41,17	45,44	49,25	114°	120°	121°	112°
3/4″	F	FF-BNM-FFZ	6 W	9,92	4,37	18,41	23,07	26,77	31,34	37,49	42,57	46,99	50,93	57,84	63,83	69,19	115°	120°	121°	112°
1″	F	FF-BNM-FFZ	11 W	13,10	5,56	33,75	42,29	49,08	57,46	68,73	78,05	86,14	93,37	106,04	117,03	126,85	117°	120°	124°	117°
1¼″	F	FF-FFZ	16 W	15,48	6,35	49,09	61,52	71,38	83,57	99,98	113,53	125,30	135,82	154,23	170,22	184,51	118°	121°	124°	119°
			20 W	15,88	6,35	61,36	76,90	89,23	104,47	124,97	141,92	156,63	169,77	192,79	212,78	230,63	118°	124°	130°	122°
			22 W	16,67	10,32	67,49	84,59	98,15	114,91	137,47	156,11	172,29	186,75	212,07	234,05	253,70	119°	125°	130°	122°
1½″	F	FF-FFZ	24 W	18,26	10,32	73,63	92,28	107,08	125,36	149,97	170,30	187,95	203,73	231,35	255,33	276,76	119°	124°	125°	119°
2″	F	FF-FFZ	47 W	25,00	11,11	144,19	180,71	209,69	245,50	293,68	333,50	368,07	398,96	453,06	500,02	541,99	120°	124°	125°	119°
2½″	F	FF-FFZ	70 W	31,75	14,29	214,75	269,15	312,30	365,63	437,40	496,71	548,19	594,20	674,77	744,72	807,21	120°	125°	125°	119°
3″	F	FF-FFZ	95 W	34,93	17,46	291,45	365,27	423,84	496,22	593,61	674,10	743,98	806,42	915,76	1.010,68	1.095,50	120°	125°	125°	119°

Componenti serie - FGW - Series components

Corpo maschio
Male body

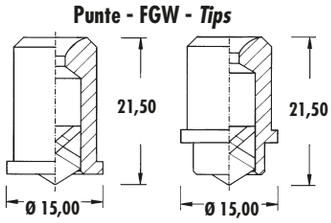


Corpo femmina
Female body

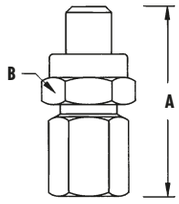
Punta
Tip

Ghiera
Retainer cap

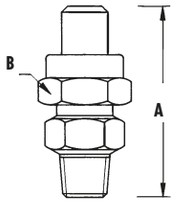
Punte - FGW - *Tips*



RFGW

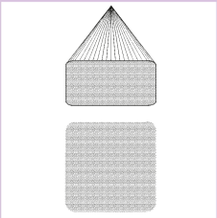


RRFGW



Dimensioni max ingombro - Max dimensions

Attacco *Pipe connection*	Tipo ugello - *Nozzle type*															
	EW		FW		RFGW		EEW		FFW		BNM		FFZW		RRFGW	
	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm
1/8″	28	14 hex			49	21 hex	30	14 hex	23	13 dia	18	11 hex	22	14 hex	49	21 hex
1/4″	37	17 hex			49	21 hex	40	17 hex	23	14 dia	25	14 hex	22	17 hex	49	21 hex
3/8″	39	22 hex			49	21 hex	45	22 hex	24	17 dia	26	18 hex	30	19 hex	49	21 hex
1/2″	48	25 hex			49	25 hex	49	25 hex	29	21 dia	32	21 hex	43	27 hex	49	21 hex
3/4″			68	33 dia					39	27 dia	36	27 hex	50	32 hex		
1″			68	38 dia					51	33 dia	50	38 hex	58	41 hex		
1¼″			88	53 dia					70	43 dia			74	50 hex		
1½″			103	59 dia					85	48 dia			85	60 hex		
2″			137	78 dia					106	60 dia			106	70 dia		
2½″			162	87 dia					128	75 dia			128	85 dia		
3″			196	105 dia					153	90 dia			153	100 dia		



Ugelli a cono pieno sezione quadrata
Square-shaped full cone spray nozzles

ESQ - EESQ - FSQ - FFSQ - BQM - FFZSQ - FGSQ

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno sezione quadrata, distribuzione uniforme su tutta la superfice e buona nebulizzazione.

COSTRUZIONE
I tipi ESQ e EESQ sono costruiti in tre pezzi con testina di spruzzo e diffusore interno rimovibili per rendere più semplici eventuali operazioni di pulizia. I tipi FSQ, FFSQ, BQM, FFZSQ e FGSQ sono composti da due pezzi con diffusore interno fisso montato a pressione. Le versioni in metallo del tipo FSQ per grandi portate con attacchi da 1¹/₄" e maggiori sono ricavate da fusione ed hanno diffusori interni rimovibili.
La punta di spruzzo FGSQ è disponibile con codice da 3,6 a 18 ed è perfettamente intercambiabile con tutte le punte della serie R1. (Vedi pagg. 112÷116)
Forniti con filettatura standard Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Il modello FSQ per grandi portate e attacco da 1¹/₄" o maggiore è fornito in fusione di acciaio inox AISI 316 e nelle versioni in PVC viene ricavato da barra.
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC per tutti gli altri tipi.
Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio prodotti, raffreddamento, lavaggio aria e gas, scrubbers, controllo e abbattimento polveri, protezione antincendio, ecc.

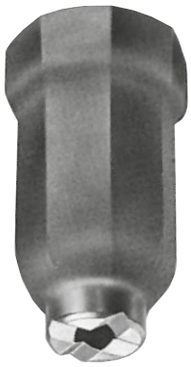
SPRAY CHARACTERISTICS
These display a full cone square-shaped spray pattern with uniform coverage over the entire surface area as well as a good atomization.

CONSTRUCTION
The ESQ and EESQ models are three-piece units comprising a body, an orifice cap and finally, an internal vane with the last two parts being both removable, necessary to simplify eventual nozzle cleaning.
The FSQ, FFSQ, BQM and FFZSQ are assembled with two pieces including a fixed internal vane due to its pressure-mounting. All the large capacity metal-made FSQ series with a thread size of 1¹/₄" and over, are two piece cast types with their appropriate removable internal vanes.
The FGSQ tip version is supplied with its code-number range from 3,6 to 18 and perfectly interchanges with all the R1 tip series. (See pages 112÷116) All the above listed nozzles are Gas tapered (BSPT - UNI 339) supplied. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are obtainable under specific request.

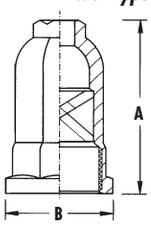
STANDARD MATERIALS
Cast stainless steel AISI 316 and PVC bar-stock types for the large capacity FSQ series with 1¹/₄" thread size and over. Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC for all the other models. Different product materials are supplied upon specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Product washing, cooling, air and gas washing, scrubbers, dust control, fire protection, etc.

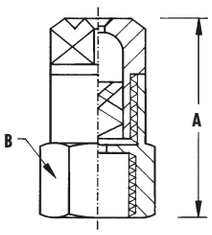
Tipi - Types



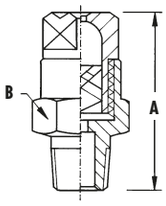
FSQ **Da fusione** ***Cast type***



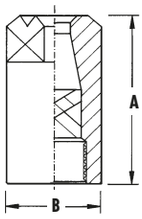
ESQ



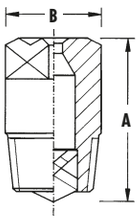
EESQ



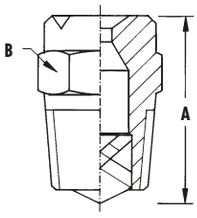
FSQ



FFSQ



BQM

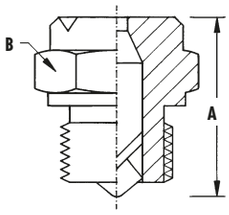


Costruzione speciale
Specially made nozzle

Installazione tipica
Typical installation

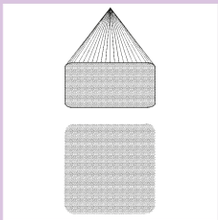
Ugello montato con fascetta
Nozzle mounted with split-eyelet

FFZSQ



Ugelli a cono pieno sezione quadrata

Square-shaped full cone spray nozzles



ESQ - EESQ - FSQ - FFSQ - BQM - FFZSQ - FGSQ

Tabella delle portate - Capacity chart

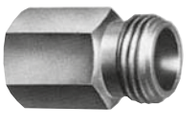
Ugello - *Nozzle*				Orifizio	Pass. libero	Pressione - *Pressure (Bar)*												Angolo di spruzzo *Spray angle*		
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*	*Orifice* ∅ Nom. mm	*Max free pas.* ∅ Nom. mm	0,3	0,5	0,7	1	1,5	2	3	4	5	6	7	10	0,5Bar	1,5Bar	5Bar
						Portata - *Capacity (l/min)*														
1/8″	E	EE-FF-BQM-FFZ	3,6 SQ	1,59	1,27	0,93	1,18	1,37	1,62	1,94	2,22	2,67	3,04	3,37	3,66	3,93	4,63	40°	52°	47°
			4,8 SQ	1,98	1,27	1,24	1,57	1,83	2,15	2,59	2,96	3,56	4,06	4,49	4,88	5,24	6,17	48°	63°	57°
			6 SQ	2,38	1,27	1,55	1,96	2,29	2,69	3,24	3,70	4,45	5,07	5,62	6,10	6,55	7,71	60°	66°	60°
1/4″	E	EE-FF-BQM-FFZ	10 SQ	2,78	1,59	2,59	3,27	3,81	4,49	5,40	6,16	7,41	8,45	9,36	10,17	10,92	12,85	62°	67°	61°
			12 SQ	3,18	1,59	3,11	3,92	4,57	5,38	6,48	7,39	8,89	10,14	11,23	12,21	13,10	15,42	70°	75°	68°
			14,5 SQ	3,91	1,59	3,75	4,74	5,53	6,51	7,83	8,93	10,75	12,26	13,57	14,75	15,83	18,63	78°	82°	75°
3/8″	E	EE-FF-BQM-FFZ	18 SQ	3,97	2,38	4,66	5,88	6,86	8,08	9,72	11,09	13,34	15,22	16,85	18,31	19,65	23,13	71°	75°	68°
1/2″	E	EE-FF-BQM-FFZ	29 SQ	5,56	3,18	7,50	9,48	11,05	13,01	15,66	17,86	21,50	24,52	27,15	29,51	31,66	37,26	71°	75°	68°
			36 SQ	6,35	3,18	9,32	11,77	13,72	16,15	19,44	22,17	26,68	30,43	33,70	36,63	39,30	46,26	78°	82°	75°
3/4″	F	FF-BQM-FFZ	50 SQ	6,75	4,37	12,94	16,34	19,06	22,43	27,00	30,79	37,06	42,27	46,81	50,87	54,59	64,25	71°	75°	68°
1″	F	FF-BQM-FFZ	106 SQ	9,92	5,56	27,43	34,64	40,40	47,56	57,24	65,28	78,57	89,61	99,23	107,85	115,72	136,21	78°	80°	73°
1¼″	F	FF-FFZ	177 SQ	12,70	6,35	45,81	57,85	67,47	79,41	95,58	109,01	131,20	149,63	165,69	180,09	193,24	227,44	78°	80°	73°
1½″	F	FF-FFZ	230 SQ	14,29	8,73	59,52	75,17	87,67	103,19	124,20	141,65	170,48	194,43	215,31	234,02	251,10	295,55	73°	77°	70°
2″	F	FF-FFZ	290 SQ	15,48	11,11	75,05	94,78	110,54	130,11	156,59	178,60	214,95	245,16	271,48	295,06	316,60	372,65	66°	70°	64°
			360 SQ	17,46	11,11	93,16	117,66	137,22	161,51	194,39	221,71	266,84	304,33	337,00	366,29	393,02	462,60	70°	74°	67°
			480 SQ	21,03	11,11	124,22	156,88	182,96	215,35	259,19	295,61	355,79	405,78	449,34	488,38	524,03	616,80	79°	82°	74°
2½″	F	FF-FFZ	490 SQ	19,84	14,29	126,81	160,15	186,77	219,84	264,59	301,77	363,20	414,23	458,70	498,56	534,94	629,65	62°	67°	61°
			590 SQ	22,23	14,29	152,69	192,83	224,89	264,70	318,59	363,35	437,32	498,77	552,31	600,30	644,12	758,15	75°	78°	71°
			950 SQ	28,58	17,46	245,85	310,50	362,11	426,21	512,98	585,06	704,16	803,10	889,32	966,59	1.037,14	1.220,75	81°	84°	76°

Componenti serie - FGSQ - Series components

Corpo maschio
Male body

Punta
Tip

Ghiera
Retainer cap

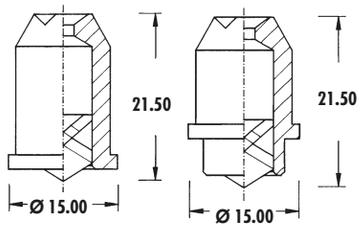


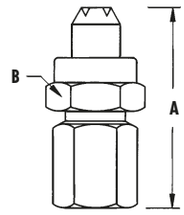
Corpo femmina
Female body

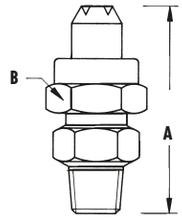
Punte - FGSQ - *Tips*

RFGSQ

RRFGSQ







Per ordinare - To order

Ugelli completi, specificare: - *Complete nozzles, please specify:*

1/2″	FF	36 SQ	SS	=	1/2FF36SQSS
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

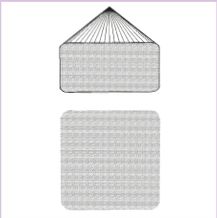
Solo punte di spruzzo, specificare: - *For only tips, please specify:*

FG	12 SQ	BR	=	FG12SQBR
Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

* Vedi Pag. 3 - *See page 3 for list*

Dimensioni max ingombro - Max dimensions

Attacco *Pipe connection*	Tipo ugello - *Nozzle type*															
	ESQ		FSQ		RFGSQ		EESQ		FFSQ		BQM		FFZSQ		RRFGSQ	
	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm
1/8″	28	14 hex			49	21 hex	30	14 hex	23	13 dia	18	11 hex	15	14 hex	49	21 hex
1/4″	37	17 hex			49	21 hex	37	17 hex	23	14 dia	25	14 hex	18	17 hex	49	21 hex
3/8″	39	22 hex			49	21 hex	39	22 hex	24	17 dia	26	18 hex	20	19 hex	49	21 hex
1/2″	48	25 hex			49	25 hex	49	25 hex	29	21 dia	32	21 hex	27	27 hex	49	22 hex
3/4″			55	33 dia					39	27 dia	36	27 hex	28	32 hex		
1″			68	38 dia					51	33 dia	50	38 hex	28	41 hex		
1¼″			88	53 dia					75	42 dia			30	50 hex		
1½″			103	59 dia					85	48 dia			35	60 hex		
2″			135	78 dia					106	60 dia			44	70 dia		
2½″			175	87 dia					128	75 dia			52	85 dia		



Ugelli a cono pieno sezione quadrata, angolo ampio

Wide angle full cone square-shaped spray nozzles

FWSQ - FFWSQ - BTM - FFZWSQ

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno con sezione quadrata e angolo ampio studiato per ottenere la massima copertura possibile, distribuzione uniforme su tutta la superfice e buona nebulizzazione.

COSTRUZIONE
I tipi FWSQ, FFWSQ, BTM e FFZWSQ sono costruiti in due pezzi da barra e con diffusori interni fissi montati a pressione.
I tipi FWSQ nella versione in metallo, con grandi portate e attacchi da 1¹/₄" e maggiori vengono ricavati da fusione ed hanno il diffusore interno rimovibile.
Forniti con filettatura Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Gli ugelli FWSQ con attacchi da 1¹/₄" e maggiori sono ricavati da fusione di acciaio inox AISI 316 o da barra nella versione in PVC.
Tutti gli altri modelli vengono forniti in ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Materiali diversi vengono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio prodotti, raffreddamento e tempra, protezione antincendio, lavaggio aria e gas, lavatori di liscivie, scrubbers, ecc.

SPRAY CHARACTERISTICS
These offer a full cone square-shaped spray pattern with a well built wide angle necessary to provide the largest possible coverage and distribution uniformity throughout the surface area as well as good atomization.

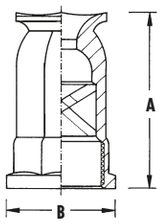
CONSTRUCTION
The FWSQ, FFWSQ, BTM and FFWSQ models are two-piece bar stock-type units with a pressure-mounted and consequently, fixed internal vane. The large capacity metal-made FWSQ series, threaded 1¹/₄" and over, are also two-piece units but cast types with removable internal vanes.
All the above stated nozzles are Gas tapered (BSPT - UNI 339) threaded. Different threadings: NPT, Gas parallel (BSPP - UNI 338) are obtainable under specific request.

STANDARD MATERIALS
Cast stainless steel AISI 316 and PVC bar-stock types for the large capacity (1¹/₄" and over) FWSQ series. Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC for all the other models.
Different product materials can be ordered upon special request. (See page 3 for list)

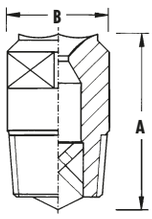
TYPICAL APPLICATIONS
Product washing, cooling and hardening, fire protection, air and gas washing, leaching, scrubbers, etc.

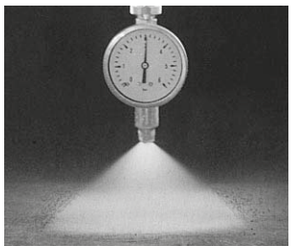
Tipi - Types

FWSQ **Da fusione** ***Cast type***

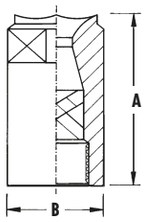


FFWSQ

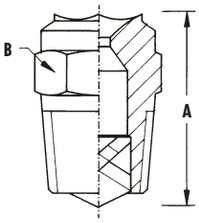


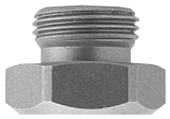


FWSQ

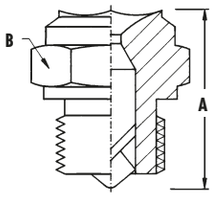


BTM





FFZWSQ



Per ordinare - To order

Specificare: - *Specify:*

1/4''	FF	14WSQ	BR	=	1/4FF14WSQBR
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale * *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

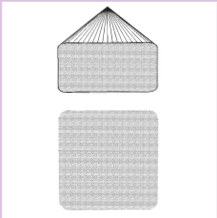
Dimensioni max ingombro - Max dimensions

Attacco *Pipe connection*	Ugello tipo - *Nozzle type*							
	FWSQ		FFWSQ		BTM		FFZWSQ	
	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm
1/8"			23	13 dia	18	11 hex	22	14 hex
1/4"			23	14 dia	25	14 hex	22	17 hex
3/8"			24	17 dia	26	18 hex	30	19 hex
1/2"			29	21 dia	32	21 hex	43	27 hex
3/4"	68	33 dia	39	27 dia	36	27 hex	50	32 hex
1"	68	38 dia	51	33 dia	50	38 hex	58	41 hex
1¹/₄"	88	53 dia	70	43 dia			74	50 hex
1¹/₂"	103	59 dia	85	48 dia			85	60 hex
2"	137	78 dia	106	60 dia			106	70 dia
2¹/₂"	162	87 dia	128	75 dia			128	85 dia
3"	196	105 dia	153	90 dia			153	100 dia

Installazioni tipiche - Typical installations

Ugelli a cono pieno sezione quadrata, angolo ampio

Wide angle full cone square-shaped spray nozzles



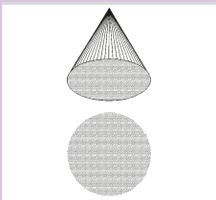
FWSQ - FFWSQ - BTM - FFZWSQ

Tabella delle portate - Capacity chart

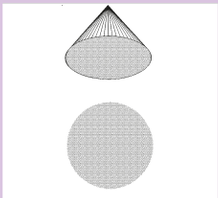
Ugello - *Nozzle*				Orifizio *Orifice*	Pass. libero *Max free pas.*	Pressione - *Pressure (Bar)*												Angolo di spruzzo *Spray angle*		
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*	∅ Nom. mm	∅ Nom. mm	0,5	0,7	1	1,5	2	2,5	3	4	5	6	7	10	0,5Bar	1Bar	5Bar
						Portata - *Capacity (l/min)*														
1/4″ 3/8″		FF-BTM-FFZ FF-BTM-FFZ	14 WSQ	3,57	1,59	4,60	5,33	6,24	7,45	8,45	9,31	10,09	11,44	12,61	13,66	14,61	17,08	99°	101°	93°
			17 WSQ	3,97	1,59	5,59	6,48	7,57	9,04	10,26	11,31	12,25	13,89	15,32	16,59	17,75	20,74	99°	101°	93°
			20 WSQ	4,37	2,38	6,58	7,62	8,91	10,64	12,07	13,30	14,41	16,34	18,02	19,51	20,88	24,40	104°	110°	94°
			24 WSQ	4,76	2,38	7,89	9,15	10,69	12,77	14,48	15,96	17,29	19,61	21,62	23,42	25,05	29,28	104°	110°	94°
			27 WSQ	5,16	2,78	8,88	10,29	12,03	14,36	16,29	17,96	19,45	22,06	24,32	26,35	28,18	32,95	104°	110°	98°
1/2″		FF-BTM-FFZ	30 WSQ	5,56	2,78	9,87	11,43	13,36	15,96	18,10	19,96	21,61	24,51	27,03	29,27	31,32	36,61	104°	110°	102°
			35 WSQ	5,95	3,18	11,51	13,34	15,59	18,62	21,12	23,28	25,21	28,60	31,53	34,15	36,53	42,71	104°	110°	102°
			40 WSQ	6,35	3,18	13,16	15,24	17,82	21,28	24,13	26,61	28,82	32,68	36,04	39,03	41,75	48,81	104°	110°	102°
			45 WSQ	6,35	3,57	14,80	17,15	20,04	23,94	27,15	29,93	32,42	36,77	40,54	43,91	46,97	54,91	104°	110°	102°
			50 WSQ	6,75	3,97	16,44	19,05	22,27	26,60	30,16	33,26	36,02	40,85	45,05	48,79	52,19	61,01	104°	110°	102°
3/4″	F	FF-BTM-FFZ	71 WSQ	9,92	4,37	23,02	26,67	31,18	37,23	42,23	46,56	50,43	57,20	63,06	68,30	73,07	85,41	105°	110°	102°
1″	F	FF-BTM-FFZ	130 WSQ	13,10	5,56	42,43	49,16	57,46	68,62	77,82	85,81	92,94	105,40	116,22	125,87	134,66	157,40	107°	110°	107°
1 1/4″	F	FF-BTM-FFZ	190 WSQ	15,48	5,56	61,50	71,26	83,30	99,47	112,81	124,39	134,72	152,80	168,47	182,46	195,20	228,18	108°	111°	109°
1 1/2″	F	FF-BTM-FFZ	290 WSQ	18,26	7,94	92,09	106,69	124,72	148,94	168,92	186,25	201,72	228,79	252,26	273,21	292,28	341,65	109°	114°	109°
2″	F	FF-BTM-FFZ	560 WSQ	25,00	11,11	180,88	209,58	244,99	292,55	331,81	365,85	396,24	449,40	495,50	536,66	574,11	671,11	110°	114°	109°
2 1/2″	F	FF-BTM-FFZ	830 WSQ	31,75	14,29	269,68	312,46	365,25	436,17	494,70	545,44	590,75	670,01	738,75	800,11	855,95	1.000,56	110°	115°	109°
3″	F	FF-BTM-FFZ	1070 WSQ	34,93	17,46	365,05	422,97	494,43	590,43	669,65	738,35	799,67	906,97	1.000,01	1.083,08	1.158,67	1.354,41	110°	115°	109°

Ugelli a cono pieno

Full cone spray nozzles



EA - EEA



EAW - EEAW

EA - EEA - EAW - EEAW

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno, buona nebulizzazione, distribuzione uniforme su tutta la superfice coperta e proiezione ad angolo retto rispetto all'ingresso. I tipi EAW e EEAW formano un getto con un angolo di copertura di 120°.

COSTRUZIONE
Costruiti in tre pezzi con testina di spruzzo e diffusore interno rimovibili per facilitare eventuali operazioni di pulizia. Forniti con filettatura Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio aria, gas, metalli, minerali, fumi, frutta e verdura. Raffreddamenti e tempre, protezione antincendio, abbattimento schiume, controllo polveri, ecc.

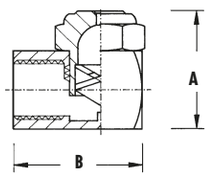
SPRAY CHARACTERISTICS
These offer a well atomized full cone right angle projection spray pattern with distribution uniformity throughout the covered surface area. The EAW and EEAW series offer a wider spray angle range up to about 120°.

CONSTRUCTION
They are manufactured as three-piece units assembled with a body as well as orifice cap and internal vane being both removable to allow easier eventual nozzle cleaning. All the nozzles are threaded Gas tapered (BSPT - UNI 339). Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are supplied under special request.

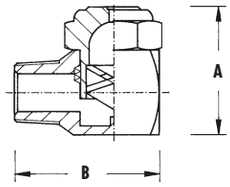
STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC. Other different product materials are achievable upon specific request basis. (See page 3 for list)

TYPICAL APPLICATIONS
Air, gas, metal, mineral, smoke, fruit and vegetable washing, cooling and hardening, fire protection, foam control, dust control, etc.

Tipi - EA - EEA - Types



EA



EEA

Per ordinare - To order

Specificare: - *Specify:*

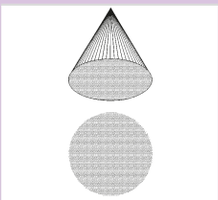
3/8″	EEA	20	SS	=	3/8EEA20SS
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

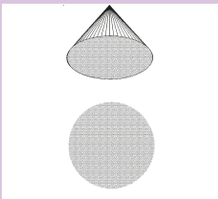
Dimensioni max ingombro

Max dimensions

Attacco *Pipe connection*	Ugello tipo - *Nozzle type*			
	EA - EAW		EEA - EEAW	
	A mm	B mm	A mm	B mm
1/8″	25	24	25	24
1/4″	31	30	32	30
3/8″	37	34	37	34
1/2″	52	41	52	42



EA - EEA



EAW - EEAW

Ugelli a cono pieno

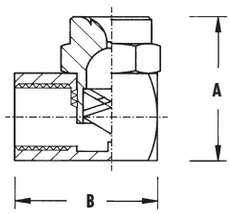
Full cone spray nozzles

EA - EEA - EAW - EEAW

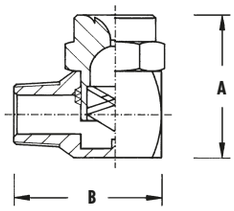
Tabella delle portate - EA - EEA - Capacity chart

Ugello - *Nozzle*				Orifizio	Pass. libero	Pressione - *Pressure* (Bar)													Angolo di spruzzo		
Attacco	Femmina	Maschio	Codice	*Orifice*	*Free passage*	0,3	0,5	0,7	1	1,5	2	2,5	3	4	5	6	7	10	Spray angle		
Pipe connect.	*Female*	*Male*	*Code*	∅ Nom. mm	∅ Nom. mm	Portata - *Capacity (l/min)*													*0,5 Bar*	*1,5 Bar*	*5Bar*
1/8″	EA	EEA	2	1,19	1,02	0,52	0,65	0,76	0,90	1,08	1,23	1,37	1,48	1,69	1,88	2,04	2,19	2,58	43°	50°	46°
			3	1,59	1,02	0,78	0,98	1,14	1,35	1,62	1,85	2,05	2,23	2,54	2,81	3,06	3,28	3,87	52°	65°	59°
			3,5	1,59	1,27	0,90	1,14	1,33	1,57	1,89	2,16	2,39	2,60	2,96	3,28	3,57	3,83	4,51	43°	50°	46°
			4	1,98	1,02	1,03	1,31	1,52	1,80	2,16	2,47	2,73	2,97	3,39	3,75	4,08	4,38	5,16	77°	84°	79°
			5	1,98	1,27	1,29	1,63	1,91	2,24	2,70	3,08	3,41	3,71	4,24	4,69	5,10	5,47	6,44	52°	65°	59°
			6	2,38	1,27	1,55	1,96	2,29	2,69	3,24	3,70	4,10	4,45	5,08	5,63	6,12	6,57	7,73	69°	74°	68°
1/4″	EA	EEA	6,5	2,38	1,59	1,68	2,12	2,48	2,92	3,51	4,01	4,44	4,83	5,51	6,10	6,63	7,12	8,38	45°	50°	46°
			10	2,78	1,59	2,59	3,27	3,81	4,49	5,40	6,17	6,83	7,42	8,47	9,38	10,20	10,95	12,89	58°	67°	61°
			12,5	3,18	1,59	3,23	4,08	4,76	5,61	6,76	7,71	8,54	9,28	10,59	11,73	12,75	13,68	16,11	69°	74°	68°
3/8″	EA	EEA	9,5	2,78	2,38	2,46	3,10	3,62	4,26	5,13	5,86	6,49	7,05	8,05	8,91	9,69	10,40	12,25	45°	50°	46°
			15	3,57	2,38	3,88	4,90	5,72	6,73	8,11	9,25	10,24	11,14	12,71	14,07	15,30	16,42	19,33	64°	67°	61°
			20	3,97	2,78	5,17	6,53	7,62	8,98	10,81	12,33	13,66	14,85	16,94	18,76	20,40	21,89	25,78	76°	80°	73°
			22	4,76	2,78	5,69	7,19	8,38	9,87	11,89	13,56	15,02	16,33	18,64	20,64	22,44	24,08	28,36	87°	90°	82°
1/2″	EA	EEA	16	3,57	3,18	4,14	5,23	6,10	7,18	8,65	9,87	10,93	11,88	13,55	15,01	16,32	17,51	20,62	48°	50°	46°
			25	4,76	3,18	6,46	8,17	9,53	11,22	13,51	15,41	17,07	18,56	21,18	23,46	25,50	27,37	32,22	64°	67°	61°
			32	5,16	3,57	8,27	10,45	12,20	14,36	17,29	19,73	21,85	23,76	27,11	30,02	32,64	35,03	41,25	72°	75°	68°
			40	6,75	3,57	10,34	13,07	15,25	17,95	21,62	24,66	27,32	29,70	33,88	37,53	40,80	43,79	51,56	88°	91°	83°
			50	6,75	3,97	12,93	16,33	19,06	22,44	27,02	30,83	34,15	37,12	42,35	46,91	51,00	54,73	64,45	91°	94°	86°

Tipi ad angolo ampio - EAW - EEAW - Wide angle spray nozzle types



EAW



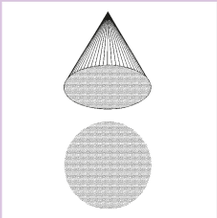
EEAW

Tabella delle portate - EAW - EEAW - Capacity chart

Ugello - *Nozzle*				Orifizio	Pass. libero	Pressione - *Pressure* (Bar)													Angolo di spruzzo		
Attacco	Femmina	Maschio	Codice	*Orifice*	*Free passage*	0,3	0,5	0,7	1	1,5	2	2,5	3	4	5	6	7	10	Spray angle		
Pipe connect.	*Female*	*Male*	*Code*	∅ Nom. mm	∅ Nom. mm	Portata - *Capacity (l/min)*													*1 Bar*	*3 Bar*	*5 Bar*
1/8″	EA	EEA	4,3 W	1,98	1,02	1,13	1,41	1,64	1,92	2,30	2,61	2,88	3,12	3,55	3,92	4,25	4,55	5,33	120°	120°	102°
			5,6 W	2,38	1,02	1,47	1,84	2,13	2,50	2,99	3,40	3,75	4,07	4,62	5,10	5,53	5,92	6,94	120°	120°	102°
			8 W	2,38	1,27	2,09	2,63	3,05	3,57	4,27	4,86	5,36	5,81	6,60	7,29	7,90	8,46	9,91	120°	120°	103°
1/4″	EA	EEA	10 W	2,78	1,27	2,62	3,28	3,81	4,46	5,34	6,07	6,70	7,27	8,25	9,11	9,88	10,58	12,39	120°	120°	103°
			12 W	3,18	1,27	3,14	3,94	4,57	5,36	6,41	7,28	8,04	8,72	9,91	10,94	11,86	12,70	14,87	120°	120°	103°
			14 W	3,57	1,59	3,66	4,60	5,33	6,25	7,48	8,50	9,38	10,17	11,56	12,76	13,83	14,81	17,35	120°	120°	103°
3/8″	EA	EEA	17 W	3,97	1,59	4,45	5,58	6,48	7,59	9,08	10,32	11,39	12,35	14,03	15,49	16,80	17,99	21,07	120°	120°	103°
			20 W	4,37	2,38	5,23	6,56	7,62	8,93	10,69	12,14	13,40	14,53	16,51	18,23	19,76	21,16	24,79	120°	121°	104°
			24 W	4,76	2,38	6,28	7,88	9,15	10,71	12,82	14,57	16,08	17,44	19,81	21,87	23,71	25,39	29,74	120°	120°	104°
			27 W	5,16	2,78	7,07	8,86	10,29	12,05	14,43	16,39	18,09	19,62	22,29	24,61	26,68	28,57	33,46	120°	120°	106°
1/2″	EA	EEA	30 W	5,56	2,78	7,85	9,85	11,43	13,39	16,03	18,21	20,10	21,80	24,76	27,34	29,64	31,74	37,18	120°	120°	108°
			35 W	5,95	3,18	9,16	11,49	13,34	15,62	18,70	21,24	23,45	25,43	28,89	31,90	34,58	37,03	43,38	120°	121°	108°
			40 W	6,35	3,18	10,47	13,13	15,24	17,85	21,37	24,28	26,81	29,06	33,02	36,45	39,52	42,32	49,57	120°	120°	108°
			45 W	6,35	3,57	11,78	14,77	17,15	20,09	24,04	27,31	30,16	32,70	37,15	41,01	44,46	47,61	55,77	120°	120°	110°
			50 W	6,75	3,97	13,08	16,41	19,05	22,32	26,71	30,35	33,51	36,33	41,27	45,57	49,40	52,90	61,96	120°	120°	112°

Ugelli a cono pieno senza diffusore

Vaneless full cone spray nozzles



EASD - EEASD

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno con proiezione ad angolo retto rispetto all'ingresso del liquido. Distribuzione uniforme su tutta la superfice coperta a tutte le pressioni e gocce più grosse rispetto agli altri ugelli a cono pieno aventi uguali portate.

COSTRUZIONE
Costruiti in due pezzi con testina di spruzzo rimovibile e senza diffusori interni per eliminare completamente i problemi di intasamento anche nei casi in cui il liquido da spruzzare contiene particelle in sospensione.
Forniti con filettatura Gas conica (BSPT - UNI 339). Filettature diverse: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Raffreddamento acqua, protezione antincendio, processi chimici, ed in tutti i casi in cui è richiesta una dispersione a cono pieno con gocce piuttosto grosse.

SPRAY CHARACTERISTICS
These ensure a full cone right angle projection spray pattern with coverage uniformity at all pressures as well as with relatively coarser droplets as compared to all the other full cone spray nozzles having equal flow rates.

CONSTRUCTION
They are two-piece constructions and for being vaneless, clogging problems are completely eliminated even when the fluids carry foreign particles, while orifice cap removability facilitates eventual nozzle cleaning. All these nozzles are manufactured with Gas tapered (BSPT - UNI 339) threading. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are obtainable upon special request.

STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC. Different product materials can be delivered upon specific request basis. (See page 3 for list)

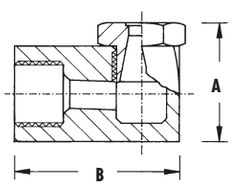
TYPICAL APPLICATIONS
Water cooling, fire protection, chemical processes and all cases in which a full cone coarse spray projection is required.

Tabella delle portate - Capacity chart

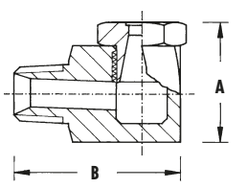
Ugello - *Nozzle*				Orifizio *Orifice*	Pass. libero *Free passage*	Pressione - *Pressure* (Bar)												Angolo di spruzzo Spray angle		
Attacco *Pipe connect.*	Femmina *Female*	Maschio *Male*	Codice *Code*	Ø Nom. mm	Ø Nom. mm	0,3	0,5	0,7	1	1,5	2	3	4	5	6	7	10			
						Portata - *Capacity (l/min)*												0,5 Bar	1,5 Bar	6 Bar
1/4″	EASD	EEASD	5	2,78	1,98	1,25	1,61	1,91	2,28	2,79	3,22	3,95	4,56	5,10	5,58	6,03	7,21	68°	75°	82°
			7	3,18	2,38	1,75	2,26	2,67	3,19	3,91	4,51	5,53	6,38	7,14	7,82	8,44	10,09	68°	75°	82°
			8	3,97	2,78	2,00	2,58	3,05	3,65	4,47	5,16	6,32	7,29	8,15	8,93	9,65	11,53	75°	80°	85°
			10	3,97	3,18	2,50	3,22	3,81	4,56	5,58	6,45	7,90	9,12	10,19	11,17	12,06	14,42	75°	80°	85°
			11	3,97	3,57	2,75	3,55	4,20	5,01	6,14	7,09	8,69	10,03	11,21	12,28	13,27	15,86	75°	80°	85°
3/8″	EASD	EEASD	11	4,37	3,18	2,75	3,55	4,20	5,01	6,14	7,09	8,69	10,03	11,21	12,28	13,27	15,86	75°	85°	83°
			13	4,37	3,57	3,25	4,19	4,96	5,93	7,26	8,38	10,26	11,85	13,25	14,52	15,68	18,74	75°	85°	83°
			16	4,37	3,97	4,00	5,16	6,10	7,29	8,93	10,32	12,63	14,59	16,31	17,87	19,30	23,07	75°	85°	83°
			20	5,56	4,37	4,99	6,45	7,63	9,12	11,17	12,89	15,79	18,24	20,39	22,33	24,12	28,83	75°	85°	83°
			23	5,56	4,76	5,74	7,41	8,77	10,49	12,84	14,83	18,16	20,97	23,45	25,68	27,74	33,16	75°	85°	83°
			26	5,95	5,16	6,49	8,38	9,92	11,85	14,52	16,76	20,53	23,71	26,50	29,03	31,36	37,48	75°	85°	83°
			29	5,95	5,56	7,24	9,35	11,06	13,22	16,19	18,70	22,90	26,44	29,56	32,38	34,98	41,81	75°	85°	83°
			33	7,54	5,95	8,24	10,64	12,59	15,04	18,42	21,28	26,06	30,09	33,64	36,85	39,80	47,57	75°	85°	83°
1/2″	EASD	EEASD	32	7,94	5,16	7,99	10,32	12,21	14,59	17,87	20,63	25,27	29,18	32,62	35,73	38,60	46,13	85°	90°	95°
			40	7,94	5,95	9,99	12,89	15,26	18,24	22,33	25,79	31,58	36,47	40,77	44,67	48,25	57,66	85°	90°	95°
			48	7,94	7,14	11,99	15,47	18,31	21,88	26,80	30,95	37,90	43,76	48,93	53,60	57,89	69,20	85°	90°	95°
			56	9,92	7,54	13,98	18,05	21,36	25,53	31,27	36,10	44,22	51,06	57,08	62,53	67,54	80,73	85°	90°	95°
			64	9,92	8,33	15,98	20,63	24,41	29,18	35,73	41,26	50,53	58,35	65,24	71,47	77,19	92,26	85°	90°	95°
			72	9,92	9,13	17,98	23,21	27,46	32,82	40,20	46,42	56,85	65,65	73,39	80,40	86,84	103,80	85°	90°	95°

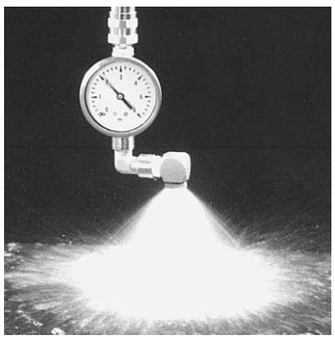
Tipi - Types

EASD



EEASD





Dimensioni max ingombro
Max dimensions

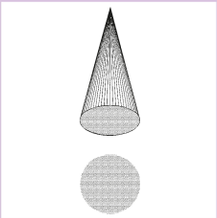
Attacco *Pipe connection*	Ugello tipo - *Nozzle type*			
	EASD		EEASD	
	A mm	B mm	A mm	B mm
1/4″	24	32	24	32
3/8″	29	36	29	36
1/2″	33	46	33	48

Per ordinare - To order

Specificare: - *Specify:*

3/8″	EEASD	20	SS	=	3/8EEASD20SS
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***



Ugelli iniettori a cono pieno con angolo stretto

Narrow angle full cone spray nozzle injectors

E - EE - F - FF 15°-30°

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno e angolo stretto da 15° o da 30°, forza di impatto molto forte e distribuzione uniforme su tutta la superfice coperta.

COSTRUZIONE
I tipi E e EE sono costruiti in tre pezzi con testina di spruzzo e diffusore interno rimovibili per rendere più facili le eventuali operazioni di pulizia. I tipi F e FF sono costruiti in due pezzi con diffusore interno rimovibile. Il tipo F, nella versione in metallo, viene ricavato da fusione mentre i tipi E, EE e FF sono ricavati da barra. Forniti con filettatura Gas conica (BSPT - UNI 339). Altre filettature: NPT, Gas cilindrica (BSPP - UNI 338), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC per tutti i modelli E, EE e FF.
Fusione di acciaio inox AISI 316 e PVC da barra per il modello F.
Altri materiali sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggi e pulizie industriali, risciacqui e in tutti i casi dove è richiesto un angolo stretto con un forte impatto.

SPRAY CHARACTERISTICS
These produce a 15° or 30° higher impact full cone coarser spray pattern uniformity throughout the covered surface area.

CONSTRUCTION
The E and EE series are three-piece units composed of a body and both an orifice cap and an internal vane being removable to enable easier eventual nozzle cleaning. The F and FF series are two-piece units with their special removable internal vanes. The metal-made F models are cast type constructions whereas the E, EE and FF versions are bar-stock type units. All the above indicated nozzles have Gas tapered (BSPT - UNI 339) threadings. Different threadings: NPT, Gas parallel (BSPP - UNI 338), etc. are manufactured under special request basis.

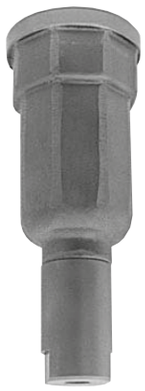
STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316 and PVC for the E, EE and FF series, cast stainless steel AISI 316 and PVC bar-stock types for F models. Different product materials are available upon specific request. (See page 3 for list)

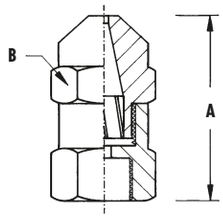
TYPICAL APPLICATIONS
Industrial washing and cleaning, rinsing and all cases in which there is the need for a narrow angle high-impact projection such as in internal spraying of ducts and pipes.

Tabella delle portate - E - EE - F 15° - Capacity chart

Ugello - *Nozzle*				Orifizio *Orifice*	Pressione - *Pressure (Bar)*														Angolo di spruzzo *Spray angle*		
Attacco *Pipe conn.*	Femmina *Female*	Maschio *Male*	Codice *Code*		0,7	1	1,5	2	2,5	3	3,5	4	5	6	7	10	15	20			
				∅ Nom. mm	Portata - *Capacity (l/min)*														1 Bar	3 Bar	7 Bar
1/8″	E	EE	1507	1,59	1,33	1,60	1,95	2,26	2,52	2,76	2,98	3,19	3,57	3,91	4,22	5,04	6,18	7,13	13°	15°	15°
			1514	2,38	2,67	3,19	3,91	4,51	5,04	5,53	5,97	6,38	7,13	7,82	8,44	10,09	12,36	14,27	13°	15°	15°
1/4″	E	EE	1530	3,18	5,72	6,84	8,37	9,67	10,81	11,84	12,79	13,67	15,29	16,75	18,09	21,62	26,48	30,58	13°	15°	15°
3/8″	E	EE	1550	4,37	9,53	11,39	13,96	16,11	18,02	19,74	21,32	22,79	25,48	27,91	30,15	36,03	44,13	50,96	13°	15°	15°
1/2″	E	EE	1590	5,56	17,16	20,51	25,12	29,01	32,43	35,53	38,37	41,02	45,86	50,24	54,27	64,86	79,44	91,73	13°	15°	15°
3/4″	F		15150	7,54	28,60	34,18	41,87	48,34	54,05	59,21	63,95	68,37	76,44	83,73	90,44	108,10	132,39	152,88	13°	15°	15°
1″	F		15280	9,92	53,39	63,81	78,15	90,24	100,89	110,52	119,38	127,62	142,68	156,30	168,83	201,79	247,14	285,37	13°	15°	15°
1¹/₄″	F		15430	12,30	81,99	97,99	120,02	138,58	154,94	169,73	183,33	195,99	219,12	240,04	259,27	309,88	379,53	438,24	14°	15°	15°
1¹/₂″	F		15630	15,08	120,12	143,57	175,84	203,04	227,01	248,68	268,60	287,15	321,04	351,68	379,86	454,02	556,05	642,08	14°	15°	15°
2″	F		151150	20,24	219,27	262,08	320,98	370,63	414,38	453,93	490,30	524,15	586,02	641,96	693,39	828,76	1.015,02	1.172,04	14°	15°	15°
2¹/₂″	F		151750	24,61	333,67	398,81	488,44	564,01	630,58	690,76	746,11	797,63	891,77	976,89	1.055,16	1.261,16	1.544,60	1.783,55	14°	15°	15°

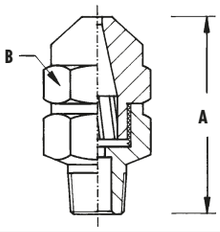
Tipi - 15° - Types





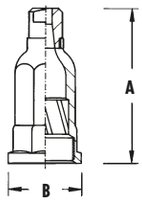
E 15°

EE 15°



F 15°

Da fusione
Cast type



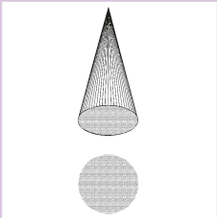
Costruzioni speciali
Specially made nozzles

Dimensioni max ingombro - Max dimensions

Attacco *Pipe connection*	Ugello tipo - *Nozzle type*							
	15°-30° E		15°-30° EE		15° F		30° FF	
	A mm	B mm	A mm	B mm	A mm	B mm	A mm	B mm
1/8″	36	18 hex	38	18 hex				
1/4″	43	21 hex	45	21 hex				
3/8″	54	26 hex	56	26 hex				
1/2″	67	32 hex	70	32 hex				
3/4″	84	38 hex	88	38 hex	72	32 dia		
1″					92	38 dia	92	35 dia
1¹/₄″					117	48 dia	127	45 dia
1¹/₂″					127	60 dia	155	50 dia
2″					183	76 dia	200	60 dia
2¹/₂″					233	88 dia	264	75 dia

Ugelli iniettori a cono pieno con angolo stretto

Narrow angle full cone spray nozzle injectors



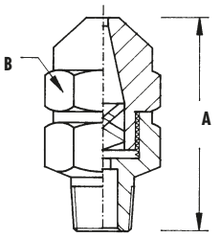
E - EE - F - FF 15°-30°

Tabella delle portate - E - EE - FF 30° - Capacity chart

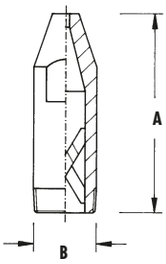
Ugello - *Nozzle*				Orifizio	Pressione - *Pressure (Bar)*														Angolo di spruzzo		
Attacco	Femmina	Maschio	Codice	*Orifice*	0,7	1	1,5	2	2,5	3	3,5	4	5	6	7	10	15	20	*Spray angle*		
Pipe conn.	*Female*	*Male*	*Code*	∅ Nom. mm	Portata - *Capacity (l/min)*														1 Bar	3 Bar	7 Bar
1/8″	E	EE	3001,4	0,79	0,27	0,32	0,39	0,45	0,51	0,56	0,60	0,64	0,72	0,79	0,85	1,02	1,24	1,44	17°	30°	31°
			3002,5	0,79	0,48	0,57	0,70	0,81	0,91	0,99	1,07	1,15	1,28	1,40	1,52	1,81	2,22	2,56	17°	30°	32°
			3004	1,19	0,77	0,92	1,12	1,30	1,45	1,59	1,72	1,83	2,05	2,25	2,43	2,90	3,55	4,10	26°	30°	32°
			3007	1,59	1,34	1,61	1,97	2,27	2,54	2,78	3,00	3,21	3,59	3,93	4,25	5,08	6,22	7,18	23°	30°	30°
1/4″	E	EE	3009	1,98	1,73	2,06	2,53	2,92	3,26	3,58	3,86	4,13	4,62	5,06	5,46	6,53	7,99	9,23	23°	30°	30°
3/8″	E	EE	3014	2,38	2,69	3,21	3,93	4,54	5,08	5,56	6,01	6,42	7,18	7,87	8,50	10,15	12,44	14,36	25°	30°	30°
1/2″	E	EE	3030	3,18	5,76	6,88	8,43	9,73	10,88	11,92	12,87	13,76	15,39	16,85	18,20	21,76	26,65	30,77	26°	30°	31°
3/4″	E	EE	3050	4,37	9,59	11,47	14,04	16,22	18,13	19,86	21,45	22,93	25,64	28,09	30,34	36,26	44,41	51,28	26°	30°	31°
1″		FF	3070	5,16	13,43	16,05	19,66	22,70	25,38	27,81	30,04	32,11	35,90	39,33	42,48	50,77	62,18	71,80	27°	30°	30°
			30100	6,35	19,19	22,93	28,09	32,43	36,26	39,72	42,91	45,87	51,28	56,18	60,68	72,53	88,83	102,57	27°	30°	30°
1 1/4″		FF	30150	7,54	28,78	34,40	42,13	48,65	54,39	59,59	64,36	68,80	76,93	84,27	91,02	108,79	133,24	153,85	27°	30°	30°
			30200	8,73	38,38	45,87	56,18	64,87	72,53	79,45	85,81	91,74	102,57	112,36	121,36	145,05	177,65	205,14	27°	30°	30°
1 1/2″		FF	30250	9,53	47,97	57,34	70,22	81,09	90,66	99,31	107,27	114,67	128,21	140,45	151,70	181,32	222,07	256,42	27°	30°	30°
			30300	10,32	57,57	68,80	84,27	97,30	108,79	119,17	128,72	137,61	153,85	168,54	182,04	217,58	266,48	307,70	27°	30°	30°
2″		FF	30350	11,11	67,16	80,27	98,31	113,52	126,92	139,04	150,18	160,54	179,49	196,63	212,38	253,84	310,89	358,99	28°	30°	30°
			30400	11,91	76,75	91,74	112,36	129,74	145,05	158,90	171,63	183,48	205,14	224,72	242,72	290,11	355,31	410,27	28°	30°	30°
			30500	13,49	95,94	114,67	140,45	162,17	181,32	198,62	214,54	229,35	256,42	280,89	303,40	362,63	444,13	512,84	28°	30°	30°
2 1/2″		FF	30600	14,68	115,13	137,61	168,54	194,61	217,58	238,35	257,44	275,22	307,70	337,07	364,08	435,16	532,96	615,41	28°	30°	30°
			30700	15,88	134,32	160,54	196,63	227,04	253,84	278,07	300,35	321,09	358,99	393,25	424,76	507,69	621,79	717,98	28°	30°	30°
			301000	19,05	191,89	229,35	280,89	324,35	362,63	397,24	429,07	458,70	512,84	561,79	606,80	725,27	888,27	1025,68	28°	30°	30°
			301100	19,84	211,08	252,28	308,98	356,78	398,90	436,97	471,98	504,57	564,12	617,97	667,48	797,79	977,09	1128,25	28°	30°	30°
			301200	20,64	230,26	275,22	337,07	389,22	435,16	476,69	514,89	550,44	615,41	674,15	728,16	870,32	1065,92	1230,82	28°	30°	30°

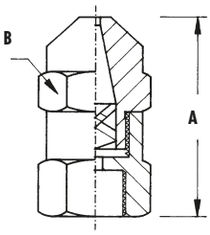
Tipi - 30° - Types

EE 30°



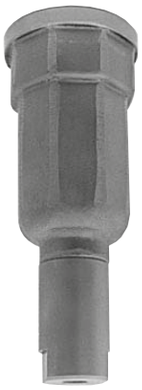
FF 30°





E 30°

Costruzioni speciali - Specially made nozzles



Per ordinare - 15° - To order

Specificare: - *Please specify:*

3/4″	F	15150	BR	=	3/4F15150BR
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

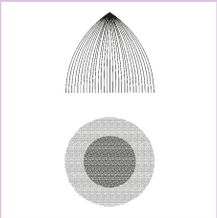
* Vedi Pag. 3 - *See page 3 for list*

Per ordinare - 30° - To order

Specificare: - *Please specify:*

1/2″	EE	3030	SS	=	1/2EE3030SS
Attacco *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

* Vedi Pag. 3 - *See page 3 for list*



Atomizzatori idraulici con getti multipli

Full cone hydraulic multiple spray nozzles

7NP

CARATTERISTICHE DI SPRUZZO
Getto finemente atomizzato con particelle finissime, crea un ombrello di nebbia con dispersione a cono pieno decrescente verso i bordi esterni.

COSTRUZIONE
Composto da un corpo sul quale sono montate sette testine di spruzzo rimovibili con le medesime caratteristiche tecniche degli ugelli NP. (Vedi pagg. 28-29)
Il modello 7NP ha un attacco standard femmina da 1″ con filettatura Gas cilindrica (BSPP - UNI 338). Altre filettature: NPT, Gas conica (BSPT - UNI 339), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Altri materiali sono forniti a richiesta (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio aria e gas, raffreddamento aria e gas, raffreddamento vasche di stoccaggio, controllo polveri, umidificazioni, ecc.

SPRAY CHARACTERISTICS
This produces a highly atomized umbrella-shaped fog-like full cone spray pattern with a greater central coverage density which decreases outwardly towards the external edge of the spray pattern.

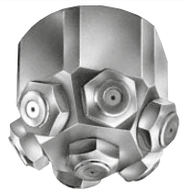
CONSTRUCTION
This unit is composed of a body on which seven identical removable NP spray nozzle types are mounted. (See pages 28-29)
All the 7NP nozzle series have an exclusively female pipe connection with only 1″ Gas parallel (BSPP - UNI 338) thread size. Different threadings: NPT, Gas tapered (BSPT - UNI 339), etc. are supplied under specific request.

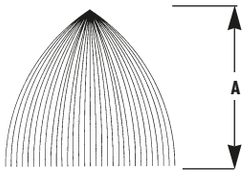
STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316, PVC. Different product materials are obtainable upon special request. (See page. 3 for list)

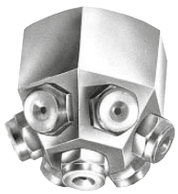
TYPICAL APPLICATIONS
Air and gas washing, air and gas cooling, cooling chambers, product preservation storage depots, dust control, humidification, etc.

Tabella delle portate - 7NP - Capacity chart

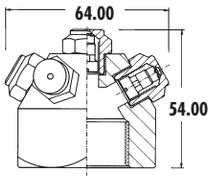
Ugello - *Nozzle*			Dimensioni del getto			Pressione - *Pressure (Bar)*															
Attacco femmina *Female pipe connection*	Tipo *Type*	Codice *Code*	*Spray dimensions*			0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	6	7	8	9	10	15
			A m	B m	C m	Portata - *Capacity (l/min)*															
1″	7 NP	0,6	0,91	1,07	0,46	0,11	0,16	0,19	0,22	0,25	0,27	0,30	0,32	0,34	0,35	0,39	0,42	0,45	0,48	0,50	0,61
		1	0,91	1,22	0,61	0,19	0,26	0,32	0,37	0,42	0,46	0,49	0,53	0,56	0,59	0,65	0,70	0,75	0,79	0,84	1,02
		1,5	0,91	1,37	0,76	0,28	0,40	0,49	0,56	0,63	0,69	0,74	0,79	0,84	0,89	0,97	1,05	1,12	1,19	1,25	1,53
		2	0,91	1,37	0,76	0,37	0,53	0,65	0,75	0,84	0,92	0,99	1,06	1,12	1,18	1,29	1,40	1,49	1,59	1,67	2,05
		3	0,91	1,68	1,07	0,56	0,79	0,97	1,12	1,25	1,37	1,48	1,59	1,68	1,77	1,94	2,10	2,24	2,38	2,51	3,07
		4	0,91	1,68	1,07	0,75	1,06	1,29	1,49	1,67	1,83	1,98	2,11	2,24	2,36	2,59	2,80	2,99	3,17	3,34	4,09
		6	0,91	1,83	1,22	1,12	1,59	1,94	2,24	2,51	2,75	2,97	3,17	3,36	3,54	3,88	4,19	4,48	4,76	5,01	6,14
		8	0,91	1,83	1,22	1,49	2,11	2,59	2,99	3,34	3,66	3,95	4,23	4,48	4,73	5,18	5,59	5,98	6,34	6,68	8,19
		10	0,91	2,13	1,37	1,87	2,64	3,24	3,74	4,18	4,58	4,94	5,28	5,60	5,91	6,47	6,99	7,47	7,93	8,36	10,23
		12	0,91	2,44	1,37	2,24	3,17	3,88	4,48	5,01	5,49	5,93	6,34	6,73	7,09	7,77	8,39	8,97	9,51	10,03	12,28
		14	0,91	2,44	1,37	2,62	3,70	4,53	5,23	5,85	6,41	6,92	7,40	7,85	8,27	9,06	9,79	10,46	11,10	11,70	14,33
		16	0,91	2,44	1,52	2,99	4,23	5,18	5,98	6,68	7,32	7,91	8,45	8,97	9,45	10,35	11,18	11,96	12,68	13,37	16,37
			2,13	2,59	1,68																
		18	0,91	2,44	1,52	3,36	4,76	5,82	6,73	7,52	8,24	8,90	9,51	10,09	10,63	11,65	12,58	13,45	14,27	15,04	18,42
			2,13	2,74	1,83																
		22	0,91	2,90	1,68	4,11	5,81	7,12	8,22	9,19	10,07	10,87	11,63	12,33	13,00	14,24	15,38	16,44	17,44	18,38	22,51
			2,13	3,35	2,13																
		26	0,91	3,05	1,83	4,86	6,87	8,41	9,71	10,86	11,90	12,85	13,74	14,57	15,36	16,83	18,17	19,43	20,61	21,72	26,61
			2,13	3,66	2,44																

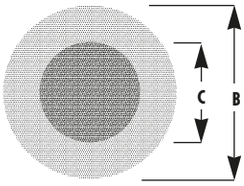


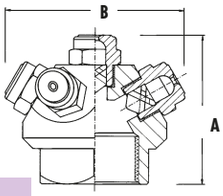




7NP







7E

Dimensioni max ingombro
Max dimensions

Attacco femmina *Female pipe connection*	Ugello tipo 7E *Nozzle type 7E*	
	A mm	B mm
3/4″	46	54
1″	85	104
1 1/2″	85	108

Per ordinare - 7NP - To order

Specificare: - *Specify:*

1″	7NP	10	SS	=	1-7NP10SS
Attacco femmina *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

Per ordinare - 7E - To order

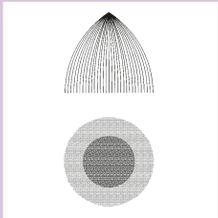
Specificare: - *Specify:*

1 1/2″	7E	50	SS	=	1 1/2-7E50SS
Attacco femmina *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

*** Vedi Pag. 3 - *See page 3 for list***

Ugelli a cono pieno con getti multipli

Full cone multiple spray nozzles



7E

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno a doccia con copertura molto ampia, grandi portate e buona nebulizzazione a tutte le pressioni.

COSTRUZIONE
Composto da un corpo sul quale sono montate sette testine di spruzzo rimovibili con le medesime caratteristiche tecniche degli ugelli tipo E. (Vedi pagg. 48-49)
Il tipo 7E ha attacchi femmina e filettatura Gas cilindrica (BSPP - UNI 338). Filettature diverse: NPT, Gas conica (BSPT - UNI 339), ecc. sono fornite su specifica richiesta.

MATERIALI STANDARD
Ottone, acciaio inox AISI 303, acciaio inox AISI 316 e PVC. Altri materiali sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Lavaggio e raffreddamento aria e gas, abbattimento polveri, protezione antincendio, lavaggio fumi, ecc.

SPRAY CHARACTERISTICS
This provides a full cone shower-like spray pattern but also with a larger coverage, high spray capacity and a good atomizing effect at all pressures.

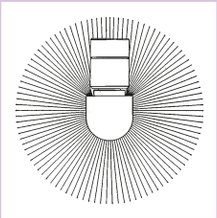
CONSTRUCTION
This unit is made up of a body on which seven removable spray nozzles are mounted with each having the same flow rate and technical characteristics of the E nozzle types. (See pages 48-49)
All the 7E unit series are built with a female Gas parallel (BSPP - UNI 338) pipe connection.
Different threadings: NPT, Gas tapered (BSPT - UNI 339), etc. are manufactured under special request.

STANDARD MATERIALS
Brass, stainless steel AISI 303, stainless steel AISI 316, PVC. Different product materials are obtainable upon specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Air and gas cooling and washing, dust control, fire protection, smoke washing, etc.

Tabella delle portate - 7E - Capacity chart

Ugello - *Nozzle*			Dimensioni del getto			Pressione - *Pressure (Bar)*															
Attacco femmina *Female pipe connection*	Tipo *Type*	Codice *Code*	*Spray dimensions*			1	1,5	2	2,5	3	3,5	4	4,5	5	6	7	8	9	10	12,5	15
			A m	B m	C m	Portata - *Capacity (l/min)*															
3/4″	7E	1	0,91	1,52	0,99	3,13	3,77	4,31	4,78	5,20	5,58	5,93	6,27	6,58	7,16	7,68	8,17	8,63	9,06	10,05	10,93
			1,52	1,98	1,30																
			2,44	2,29	1,45																
			3,35	2,44	1,60																
		1,5	0,91	2,44	1,68	4,69	5,66	6,46	7,16	7,79	8,37	8,90	9,40	9,87	10,74	11,53	12,26	12,95	13,59	15,07	16,39
			1,52	2,74	1,98																
			2,44	3,05	2,29																
			3,35	3,20	2,36																
		3	0,91	2,59	1,68	9,38	11,32	12,92	14,33	15,59	16,74	17,80	18,80	19,74	21,47	23,05	24,52	25,89	27,18	30,14	32,79
			1,52	3,05	1,98																
			2,44	3,35	2,13																
			3,35	3,51	2,29																
		5	0,91	2,90	1,91	15,64	18,86	21,54	23,88	25,98	27,90	29,67	31,33	32,89	35,78	38,42	40,87	43,16	45,31	50,23	54,64
			1,52	3,35	2,13																
			2,44	3,66	2,36																
			3,35	3,81	2,44																
1″	7E	10	0,91	2,21	1,45	31,28	37,72	43,08	47,76	51,96	55,79	59,34	62,66	65,79	71,57	76,85	81,74	86,31	90,62	100,46	109,28
			1,52	2,90	1,91																
			2,44	3,66	2,36																
			3,35	4,27	2,74																
		12,5	0,91	3,66	3,05	39,09	47,15	53,85	59,70	64,95	69,74	74,18	78,32	82,23	89,46	96,06	102,17	107,89	113,27	125,57	136,61
			1,52	4,04	3,35																
			2,44	4,27	3,66																
			3,35	4,42	3,81																
1″ 1 1/2″	7E 7E	25	0,91	4,19	2,74	78,19	94,30	107,70	119,40	129,89	139,48	148,35	156,65	164,46	178,92	192,12	204,35	215,78	226,54	251,14	273,21
			1,52	4,88	3,20																
			2,44	5,18	3,35																
			3,35	5,33	3,51																
		30	0,91	4,19	2,74	93,83	113,16	129,24	143,28	155,87	167,37	178,02	187,98	197,36	214,70	230,55	245,22	258,93	271,85	301,37	327,85
			1,52	4,88	3,20																
			2,44	5,18	3,35																
			3,35	5,33	3,51																
		32	0,91	4,19	2,74	100,08	120,70	137,86	152,83	166,26	178,53	189,89	200,51	210,51	229,01	245,92	261,57	276,20	289,97	321,46	349,71
			1,52	4,88	3,20																
			2,44	5,18	3,35																
			3,35	5,33	3,51																
		40	0,91	4,19	2,74	125,10	150,88	172,32	191,04	207,82	223,16	237,37	250,64	263,14	286,27	307,40	326,96	345,24	362,46	401,83	437,14
			1,52	4,88	3,20																
			2,44	5,18	3,35																
			3,35	5,33	3,51																
1 1/2″	7E	45	0,91	4,27	2,90	140,74	169,74	193,86	214,92	233,80	251,06	267,04	281,97	296,03	322,05	345,82	367,83	388,40	407,77	452,05	491,78
			1,52	5,03	3,35																
			2,44	5,33	3,66																
			3,35	5,49	3,81																
		50	0,91	4,42	3,20	156,38	188,60	215,40	238,79	259,78	278,96	296,71	313,30	328,93	357,83	384,25	408,70	431,55	453,08	502,28	546,42
			1,52	5,18	3,66																
			2,44	5,49	4,11																
			3,35	5,79	4,27																



Ugelli rotanti
Rotating spray nozzles

TURBOCIP - TURBO 2L

CARATTERISTICHE DI SPRUZZO
Questi ugelli rotanti producono, attraverso due orifizi a fessura, due getti principali a lama in direzioni opposte. Mediante la loro testa rotante a 360°, messa in moto dalla pressione del liquido da spruzzare, provvedono all'intera copertura interna di contenitori con un getto a sfera. Per un ottimo ed efficace funzionamento richiedono una pressione d'esercizio compresa tra 2 e 10 bar. La velocità di rotazione della testa è direttamente proporzionale alla pressione usata.

COSTRUZIONE
Il modello TURBOCIP ha attacchi da 1/2" e da 3/4" con filettatura femmina Gas cilindrica (BSPP - UNI 338) ed è costituito da diversi pezzi con doppia pista di sfere per garantire la perfetta rotazione in qualsiasi posizione venga montato. Oltre ai due orifizi principali con getto a lama, la testa rotante ha altri due orifizi contrapposti e un terzo vicino al bordo superiore che producono dei getti rettilinei. Le due misure del TURBOCIP possono passare, rispettivamente, attraverso fori da 40 mm e da 45 mm e possono garantire una completa pulizia interna di contenitori o cisterne aventi diametro di circa 3 metri. Oltre alla normale copertura a 360° possono essere costruiti con copertura parziale come 180° superiore, 180° inferiore e altre coperture su specifica richiesta. Le versioni con attacco a clip e a saldare vengono fornite su specifica richiesta. La versione TURBO 2L è anch'essa costituita da diversi pezzi con attacco femmina da 1/4" e filettatura Gas cilindrica (BSPP - UNI 338) ed è particolarmente adatta per la pulizia interna di piccoli contenitori con diametro interno di circa un metro e con accessibilità difficoltosa. Possono passare attraverso fori di 26 mm di diametro.

MATERIALI STANDARD
Sia il modello TURBOCIP che il TURBO 2L sono interamente costruiti in acciaio inox AISI 316 per garantire la massima durata e un alto livello di resistenza contro gli acidi, solventi e detergenti.

APPLICAZIONI TIPICHE
Pulizia o lavaggio interno di contenitori o cisterne mediante l'uso di acqua o di soluzioni chimiche. Vengono utilizzati nell'industria chimica, alimentare, casearia, delle bevande, della birra, ecc.

SPRAY CHARACTERISTICS
These have two slotted orifices which display two flat spray projections in opposed directions and thanks to their 360° spray head rotation, set in motion by the same washing liquid, they provide a complete spherical spray coverage over the entire internal wall-surface of tanks. They require an operating pressure-range from 2 to 10 bars for a good technical performance. The rotation speed is directly proportional to the operating pressure.

CONSTRUCTION
The TURBOCIP model with its respective female Gas parallel (BSPP - UNI 338) pipe connection sizes of 1/2" and 3/4" is a multi-pieces unit with double ball bearing to allow rotation in whatever position it is mounted. Apart from its two flat spray projection slotted orifices, the rotating spray head bears two more lateral orifices in opposed directions as well as a third smaller orifice next to the spray head rim, all of which produce solid-stream needle-like projections. The two TURBOCIP model sizes, thus the small-size nozzle type with a minimum tank-hole diametre of 40 mm and the big size nozzle type with a minimum tank-hole diametre of 45 mm, guarantee a good and complete internal washing of tanks with slightly more than three-metre diametre. Apart from the standard 360° spray coverage, the turbocip model can be designed to offer other such particular semi-spherical spray coverages as 180° up or 180° down, as well as other spray coverage peculiarities conditioned by the need to make specific request. Both clip-on and weldable models are obtainable under special request. The TURBO 2L versions which are also multi-pieces units with female Gas parallel (BSPP - UNI 338) 1/4" pipe connection size, are most commonly suitable for internal spherical washing of relatively smaller-size tanks, having about one-metre diametre and especially with very little passages which make internal accessibility quite difficult. Their minimum tank-hole diametre should be 26 mm.

STANDARD MATERIALS
All nozzles are completely manufactured with stainless steel AISI 316 to guarantee extended durability and high-level resistance against acids, solvents and detergents.

TYPICAL APPLICATIONS
Internal barrel and tank washings by using water or chemical solutions, industrial chemical processes, food processing industries, dairy processing industries, drink industries, beer processing in breweries, etc.

Tabella delle portate - Capacity chart

Ugello - *Nozzle*			Larghezza fessura *Width of slot*	Pressione - *Pressure* (Bar)																
Attacco femm. Fem. pipe conn.	Tipo Type	Codice *Code*		2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10
				Portata - *Capacity (l/min)*																
1/2" 3/4"	TURBOCIP	50	1,2	40,82	45,64	50,00	54,01	57,74	61,24	64,55	67,70	70,71	73,60	76,38	79,06	81,65	84,16	86,60	88,98	91,29
		60	1,5	48,99	54,77	60,00	64,81	69,28	73,48	77,46	81,24	84,85	88,32	91,65	94,87	97,98	101,00	103,92	106,77	109,54
		75	2	61,24	68,47	75,00	81,01	86,60	91,86	96,82	101,55	106,07	110,40	114,56	118,59	122,47	126,24	129,90	133,46	136,93
1/4"	TURBO2L	17	1,8	5,25	5,87	6,44	6,95	7,43	7,88	8,31	8,71	9,10	9,47	9,83	10,17	10,51	10,83	11,15	11,45	11,75

Per ordinare - To order

Specificare: - *Specify:*

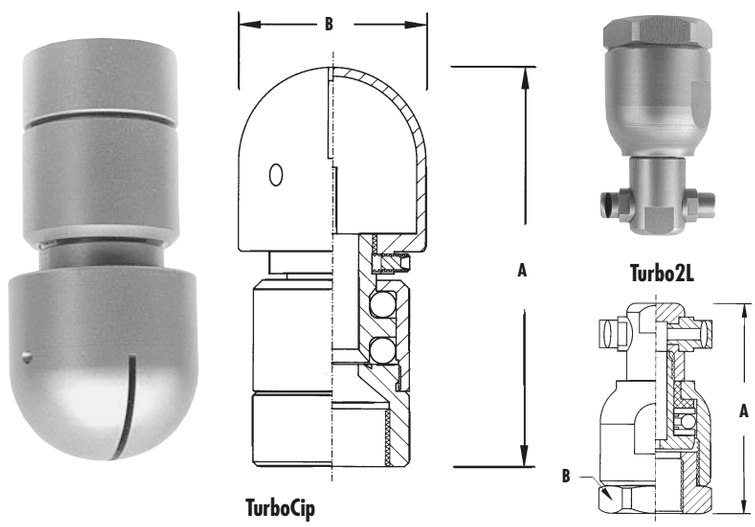
3/4"	TURBOCIP	75	SS316	=	3/4TURBO75SS316
Attacco femmina *Pipe connection*	Tipo *Type*	Codice *Code*	Materiale* *Material**		Esempio *Example*

* **Vedi Pag. 3 - *See page 3 for list***

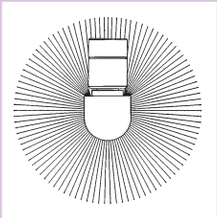
Dimensioni max ingombro
Max dimensions

Attacco femmina *Female pipe connection*	Ugello tipo- *Nozzle type*			
	TURBO 2L		TURBOCIP	
	A mm	B mm	A mm	B mm
1/4"	47	22 hex		
1/2"			80	36 dia
3/4"			90	42 dia

Tipi - Types

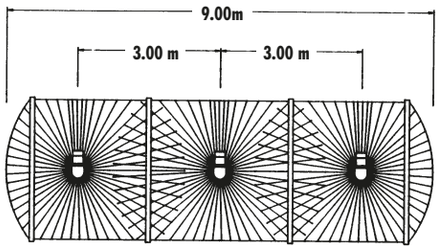


Ugelli rotanti
Rotating spray nozzles

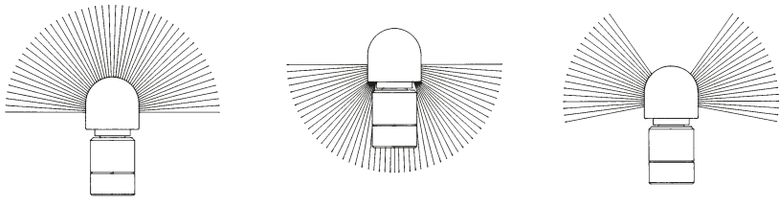


TURBOCIP - TURBO 2L

Schema d'installazione - Installation layout

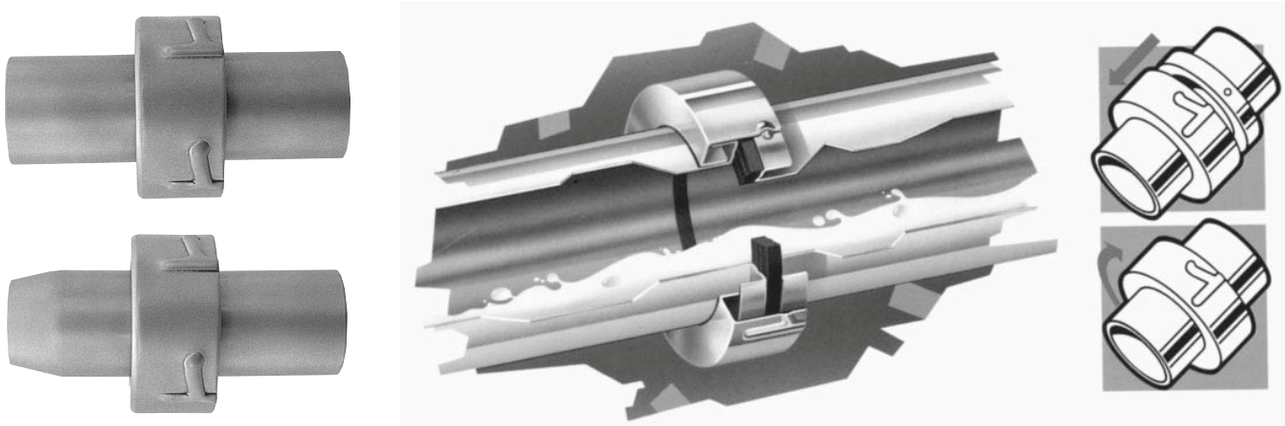


Particolari forme di copertura - Particular spray coverages



Costruzioni speciali - Specially made nozzles

Raccordo speciale a saldare - Special welding fitting



Ugello rotante
Rotating spray nozzle

TURBO Z

COSTRUZIONE
Questi modelli hanno una testa progettata in modo da consentire una uniforme distribuzione su tutta la superficie coperta.
Mediante la loro testa rotante a 180°, messa in moto dalla stessa pressione del liquido da spruzzare, provvedono alla completa copertura interna di contenitori con un getto a sfera.
Attacco femmina da 3/4" Gas cilindrica (BSP – UNI 338).

ANGOLI DI COPERTURA
I modelli TURBO Z sono disponibili con i tre angoli di copertura seguenti:
360°, 180° spuzzo in alto e 180° spruzzo in basso.

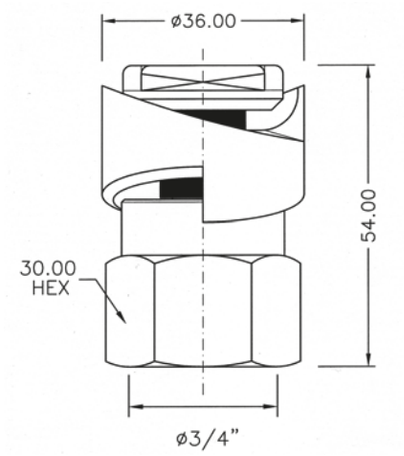
MATERIALI
Bussola in PTFE e acciaio inox AISI 316 per tutti gli altri componenti.

CONSTRUCTION
These have a special design spray head which allows a uniform water distribution troughout the covered surface area. Tanks to their 180° spray head rotation, set in motion by the same washing liquid, they provide a conplete spherical spray coverage over the entire internal wall-surface of tanks.
Female Gas parallel (BSP – UNI 338) pipe connection size.

COVERAGE ANGLES
TURBO Z tank washing nozzles are available with three different spray coverages as follows:
360°, 180°spray up and 180° spray down.

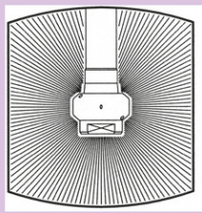
MATERIALS
PTFE for bearings and stainless steel AISI 316 for all the other components.

Tipo - TURBO Z - Type



Jet System S.r.l. - Via Cavalieri di Vittorio V.to 17/G - 32036 SEDICO (BL) - Tel. +39 0437867423 - info@jetsystemsrl.it

Ugelli rotanti
Rotating nozzles



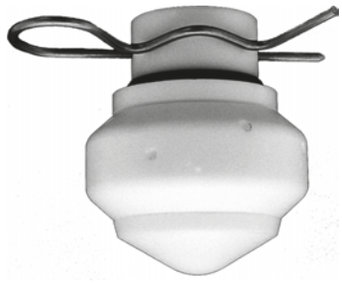
TTEF

Tipi - Types

Tipo - FI - *Type*

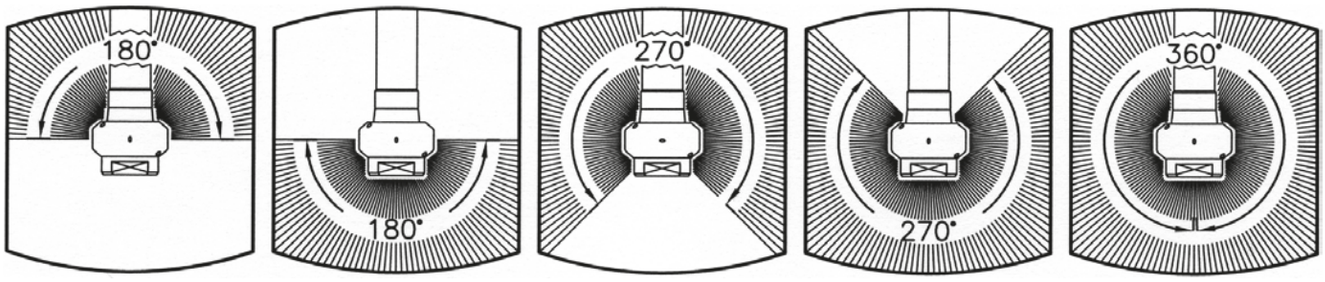
Tipo - AN - *Type*

Tipo - OR - *Type*



Tipo - CL - *Type*

Particolari forme di copertura – Particular spray coverages



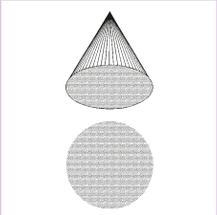
A B C D E

Tabella delle portate – Capacity chart

UGELLO - NOZZLE			PRESSIONE - PRESSURE (Bar)								Ø MAX
Type FI - AN - OR	Type CL	Codice	0,5	0,7	1	1,5	2	2,5	3	3,5	Copertura
Female Connection	*Clip Connection*	*Code*	PORTATA - CAPACITY (l/min)								*Coverage*
1/2"	===	8	12,95	15,32	18,31	22,43	25,90	28,95	31,72	34,26	3 m
3/4"	===	18	29,13	34,47	41,20	50,46	58,27	65,15	71,37	77,08	
===	3/4"	23	37,23	44,05	52,65	64,48	74,46	83,24	91,19	98,50	
===	DN20	23	37,23	44,05	52,65	64,48	74,46	83,24	91,19	98,50	4,5 m
3/4"	===	32	51,80	61,28	73,25	89,71	103,59	115,82	126,87	137,04	
3/4"	===	46	74,46	88,10	105,30	128,96	148,91	166,49	182,38	196,99	
===	1"	33	53,41	63,20	75,54	92,52	106,83	119,44	130,84	141,32	
===	DN25	33	53,41	63,20	75,54	92,52	106,83	119,44	130,84	141,32	
1"	===	50	80,93	95,76	114,45	140,17	161,86	180,96	198,24	214,12	
===	1½"	53	85,79	101,50	121,32	148,59	171,57	191,82	210,13	226,97	5,5 m
===	DN40	53	85,79	101,50	121,32	148,59	171,57	191,82	210,13	226,97	
1"	===	70	113,30	134,06	160,23	196,24	226,60	253,35	277,53	299,77	
1"	===	90	145,67	172,36	206,01	252,31	291,35	325,74	356,83	385,42	
		100	161,86	191,52	228,90	280,35	323,72	361,93	396,47	428,24	
		125	202,32	239,39	286,13	350,44	404,65	452,41	495,59	535,30	
2"	===	150	242,79	287,27	343,36	420,52	485,58	542,89	594,71	642,36	6 m
		175	283,25	335,15	400,58	490,61	566,51	633,38	693,83	749,42	
		200	323,72	383,03	457,81	560,70	647,44	723,86	792,95	856,48	
		250	404,65	478,79	572,26	700,87	809,30	904,82	991,18	1070,60	
3"	===	300	485,58	574,55	686,71	841,05	971,16	1085,79	1189,42	1284,72	7,5 m
		350	566,51	670,30	801,16	981,22	1133,02	1266,75	1387,66	1498,84	

Per ordinare, specificare
To order, specify

3/4"	TTEF AN	E	46	=	3/4TTEFANE46
Attacco *Pipe Connection*	Tipo Ugello *Nozzle Type*	Copertura *Coverage*	Codice *Code*		Esempio *Example*



Ugelli cono pieno a spirale
Spiral full cone spray nozzles

FFS

CARATTERISTICHE DI SPRUZZO
Getto a cono pieno con ottima nebulizzazione e distribuzione uniforme su tutta la superfice coperta. Forniscono delle portate più grandi rispetto agli altri ugelli a cono pieno con uguale attacco.

COSTRUZIONE
Realizzati in un unico pezzo con la parte terminale a forma di spirale. L'assenza di diffusori interni ed i passaggi particolarmente larghi assicurano all'ugello grande efficienza ed energia che consente di eliminare il problema dell' intasamento.
Attacchi maschio e filettatura Gas conica (BSPT - UNI 339). Forniti anche con filettatura NPT su specifica richiesta.

ANGOLI STANDARD
I tipi con attacco da 1/4" con codice 7 e da 3" e 4" con codici compresi tra 2560 e 5250 sono forniti con angoli da 60°, 90° e 120°. I tipi con attacco da 3/8" con codici compresi tra 7 e 20 sono disponibili solo con angolo di 60°.
Tutti gli altri ugelli sono forniti con angoli da 60°, 90°, 120°, 150° e 170°.

MATERIALI STANDARD
Ottone, fusione di acciaio inox AISI 316, teflon e PVC. Materiali diversi sono forniti a richiesta. (Vedi pag. 3)

APPLICAZIONI TIPICHE
Raffreddamento aria e gas, raffreddamento per evaporazione, abbattimento polveri, desolforazione gas di combustione, ecc.

SPRAY CHARACTERISTICS
This provides a full cone finely atomized and uniform spray pattern coverage over the entire surface area selected. It also has the largest possible flow capacity as compared to the other full cone spray nozzles with the same pipe connection size.

CONSTRUCTION
It is a single-piece spiral-shaped unit with particularly large passages, high energy efficiency and no internal parts, all of which contribute to eliminate clogging problems outright.
All the FFS nozzle series are only male standard Gas tapered (BSPT - UNI 339) as well as alternatively available in NPT threading which is supplied under special request.

SPRAY ANGLES
The 1/4" size FFS model code-numbered 7 as well as the 3" and 4" sizes with code-numbers ranging from 2560 to 5250 all have the exclusive spray angles of 60°, 90° and 120°.
The 3/8" size FFS models with code-number range from 7 to 20 have only a 60° spray angle.
All the other FFS nozzle series have the basic standard angles of 60°, 90°, 120°, 150° and 170°.

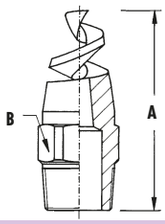
STANDARD MATERIALS
Brass, cast stainless steel AISI 316, teflon and PVC. Different product materials are obtainable upon specific request. (See page 3 for list)

TYPICAL APPLICATIONS
Air and gas cooling, evaporative cooling, dust control, gas of combustion desulphurization, etc.

Tabella delle portate - Capacity chart

Ugello - *Nozzle*			Orifizio *Orifice*	Pass. libero *Free passage*	Pressione - *Pressure* (Bar)															
Attacco Male pipe conn.	Tipo Type	Codice *Code*	Ø NOM mm	Ø NOM mm	0,5	0,7	1	1,5	2	2,5	3	4	5	6	7	10	15	20	25	30
					Portata - *Capacity (l/min)*															
1/4" 3/8"	FFS FFS	7	2,38	2,38	2,25	2,67	3,19	3,90	4,51	5,04	5,52	6,37	7,12	7,80	8,43	10,08	12,34	14,25	15,93	17,45
		13	3,18	3,18	4,18	4,95	5,92	7,25	8,37	9,36	10,25	11,83	13,23	14,49	15,66	18,71	22,92	26,46	29,59	32,41
		20	3,97	3,18	6,44	7,62	9,10	11,15	12,87	14,39	15,77	18,21	20,36	22,30	24,09	28,79	35,26	40,71	45,52	49,86
		30	4,76	3,18	9,66	11,42	13,66	16,72	19,31	21,59	23,65	27,31	30,53	33,45	36,13	43,18	52,89	61,07	68,28	74,79
		40	5,56	3,18	12,87	15,23	18,21	22,30	25,75	28,79	31,54	36,41	40,71	44,60	48,17	57,58	70,52	81,43	91,04	99,73
		53	6,35	3,18	17,06	20,18	24,12	29,55	34,12	38,14	41,78	48,25	53,94	59,09	63,83	76,29	93,43	107,9	120,6	132,1
		82	7,94	3,18	26,39	31,23	37,32	45,71	52,79	59,02	64,65	74,65	83,46	91,43	98,75	118,0	144,6	166,9	186,6	204,4
1/2"	FFS	120	9,53	4,76	38,62	45,70	54,62	66,90	77,25	86,36	94,61	109,2	122,1	133,8	144,5	172,7	211,5	244,3	273,1	299,2
		164	11,11	4,76	52,79	62,46	74,65	91,43	105,6	118,0	129,3	149,3	166,9	182,9	197,5	236,1	289,1	333,8	373,2	408,9
3/4"	FFS	210	12,70	4,76	67,59	79,97	95,59	117,1	135,2	151,1	165,6	191,2	213,7	234,1	252,9	302,3	370,2	427,5	477,9	523,6
1"	FFS	340	15,88	6,35	109,4	129,5	154,8	189,5	218,9	244,7	268,1	309,5	346,1	379,1	409,5	489,4	599,4	692,1	773,8	847,7
		470	19,05	6,35	151,3	179,0	213,9	262,0	302,5	338,3	370,5	427,9	478,4	524,0	566,0	676,5	828,6	956,7	1.070	1.172
1 1/2"	FFS	640	22,23	7,94	206,0	243,7	291,3	356,8	412,0	460,6	504,6	582,6	651,4	713,6	770,7	921,2	1.128	1.303	1.457	1.596
		820	25,40	7,94	263,9	312,3	373,2	457,1	527,9	590,2	646,5	746,5	834,6	914,3	987,5	1.180	1.446	1.669	1.866	2.044
		960	28,58	7,94	309,0	365,6	437,0	535,2	618,0	690,9	756,9	873,9	977,1	1.070	1.156	1.382	1.692	1.954	2.185	2.393
2"	FFS	1400	34,93	11,11	450,6	533,2	637,3	780,5	901,2	1.008	1.104	1.275	1.425	1.561	1.686	2.015	2.468	2.850	3.186	3.490
		1780	38,10	11,11	572,9	677,9	810,2	992,3	1.146	1.281	1.403	1.620	1.812	1.985	2.144	2.562	3.138	3.623	4.051	4.438
3"	FFS	2560	44,45	14,29	824,0	974,9	1.165	1.427	1.648	1.842	2.018	2.331	2.606	2.854	3.083	3.685	4.513	5.211	5.826	6.382
		3360	50,80	14,29	1.081	1.280	1.529	1.873	2.163	2.418	2.649	3.059	3.420	3.746	4.046	4.836	5.923	6.840	7.647	8.377
4"	FFS	5250	63,50	15,88	1.690	1.999	2.390	2.927	3.380	3.778	4.139	4.779	5.344	5.854	6.323	7.557	9.255	10.687	11.948	13.089

FFS



Per ordinare, specificare - To order, specify

1/2"	FFS	120°	120	PVC	=	1/2FFS120120PVC
Attacco maschio *Pipe connection*	Tipo *Type*	Angolo *Angle*	Codice *Code*	Materiale* *Material**		Esempio *Example*

* **Vedi Pag. 3** - ***See page 3 for list***

Dimensioni max ingombro
Max dimensions

Attacco *Pipe connection*	Ugello tipo- *Nozzle type*			
	FFS 60°- 90° - 120°		FFS 150° - 170°	
	A mm	B mm	A mm	B mm
1/4"	48	14 hex	61	14 hex
3/8"	48	17 hex	61	17 hex
1/2"	64	21 hex	78	21 hex
3/4"	92	27 hex	89	27 hex
1"	92	32 hex	111	32 hex
1 1/2"	111	50 hex	137	50 hex
2"	149	60 hex	175	60 hex
3"	203	90 dia		
4"	229	115 dia		