SPAD FLOW
گروه صنعتی اسپاد فلو
SPRAYING SYSTEMS AND NOZZLES

CHAPTER 3
Full Cone Nozzles

ENG-036-R03-03.08.20

ABOUT US

We Are Here to Help

Welcome to SPADFLOW

facing the Challenges of new industries and emerging markets.

Spray Technologies

with over Thousands of Spray Nozzle Types SPADFLOW has become Iran's leading producer.

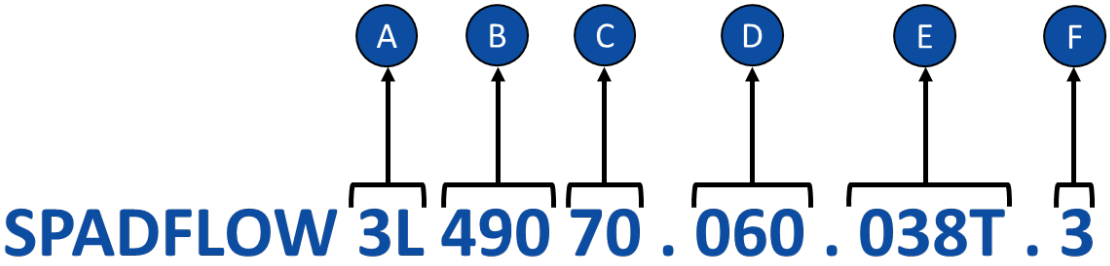
From Design to Installation

with Skilled engineers and project managers, SPADFLOW is providing consultancy and support services.

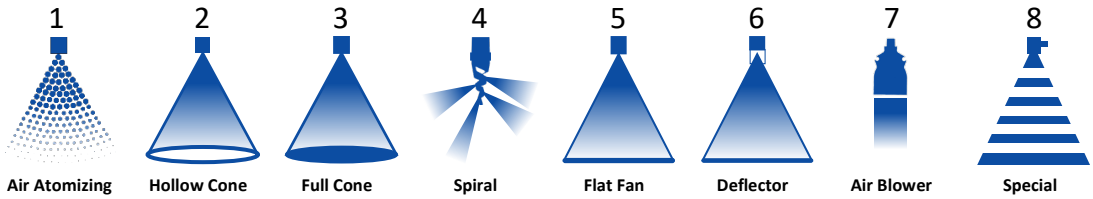
Knowledge and Experience

as an Expert on spray technology, SPADFLOW is at the forefront of production and innovation.

PRODUCT NUMBERS
Everything You Need to Know



A Nozzle Type (Spray Pattern)



B Nozzle Series

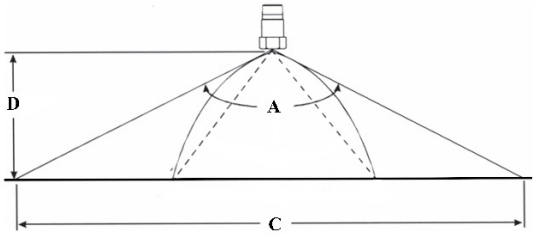
C Flow Rate Rank

The flow rate rank is relative and depends on the respective nozzle type. The exact value is mentioned in tables on the product pages.

D Spray Angle

Theoretical spray angle is mentioned in tables on the product pages. Actual spray angle depends on installation and alignment.

A = Theoretical Spray Angle
D = Spray Distance
C = theoretical Spray Coverage



SPADFLOW
گروه صنعتی اسپاد فلو
SPRAYING SYSTEMS AND NOZZLES

PRODUCT NUMBERS
Everything You Need to Know

E Connection

1/8" to 4" connections. The exact specification is mentioned in tables on the product pages.
T = BSBT Thread Type Connection
P = BSPP Thread Type Connection
N = NPT Thread Type Connection
R = Retaining Nut

F Material

Material	Code	Material	Code
Brass	1	Polyvinylchloride	PVC
AISI 304/304L Stainless Steel	2	Polypropylene	PP
AISI 316/316L Stainless Steel	3	Polyamide	PA
AISI 310 Stainless Steel	4	Polyvinylidenefluoride	PVDF
AISI 321 Stainless Steel	5	Polytetrafluorethylene	PTFE
AISI 420 Stainless Steel	6	Polyoxymethylene	POM
Tungsten Carbide	TN	Nitrile Butadiene Rubber	NBR
Phosphor Bronze	CuSn	Polylactic Acid	PLA
Copper	Cu	Acrylonitrile Butadiene Styrene	ABS
Titanium	TI	Nylon Polyamide	PA6
Aluminum	AL	Polycarbonate	PC

Ø B (Equivalent Bore Diameter)

Applies to elliptical discharge holes of flat fan nozzles. A cylindrical hole with a diameter A has the same surface area as the ellipse.

Ø E (Narrowest Free Cross Section)

Important Characteristics for determining the pre-filtration of a nozzle. Can be less than a due to several swirl ducts.

Conversion Formula: K factor $\times\sqrt{P(bar)}$ = Q (l/min)

All flow rate data in this catalogue is based on measurements with water,

Spray angle (α)	Code	Connection Size [inch]	Ø B [mm]	Ø E [mm]	Flow rate (Q) [l/min] Pressure (P) [bar] 0.5	1.0 K factor	2.0	3.0	5.0	7.0	10.0
45°	3L 490 40 . 045	1/8"	1.25	1.25	0.57	0.76	1.00	1.18	1.44	1.65	1.90
	3L 490 60 . 045	1/4"	2.00	2.00	1.81	2.39	3.15	3.70	4.54	5.20	6.00
	3L 490 70 . 045	3/8"	2.65	2.65	3.22	4.24	5.60	6.59	8.08	9.24	10.66
	3L 490 78 . 045	1/2"	3.45	3.45	5.17	6.82	9.00	10.58	12.98	14.85	17.12
60°	3L 490 40 . 060	1/8"	1.15	1.15	0.57	0.76	1.00	1.18	1.44	1.65	1.90
	3L 490 80 . 060	3/8"	3.70	3.70	5.74	7.58	10.00	11.76	14.43	16.51	19.04
	3L 490 88 . 060	1/2"	4.65	4.65	9.19	12.13	16.00	18.82	23.08	26.41	30.46
	3L 490 96 . 060	3/4"	5.80	5.80	14.36	18.95	25.00	29.40	36.07	41.26	47.59
	3L 491 08 . 060	1"	8.15	8.15	28.72	37.89	50.00	58.80	72.14	82.53	95.18

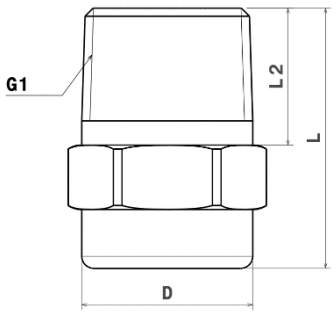
SPADFLOW spray nozzles are manufactured with the highest precision and undergo permanent quality checks. However, production-related tolerances can affect the spray angle, flow rate, droplet size and droplet distribution.

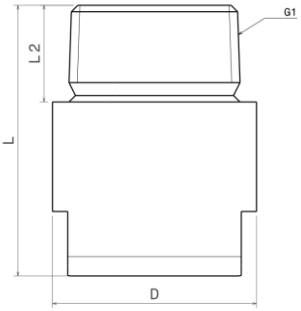
SPADFLOW گروه صنعتی اسپاد فلو SPRAYING SYSTEMS AND NOZZLES

SPADFLOW 3L 490/491

Clog-Resistance Full-Cone Nozzle

Webpage + STP





3L 490 Series

3L 491 Series

G1	Thread Type			Dimensions [mm]				Weight
	BSPT	BSPP	NPT	L	L_2	D	Hex/Flats	
1/8"	018T	018P	018N	18.0	6.5	10.0	11	13 gr
1/4"	014T	014P	014N	22.0	10.0	13.0	14	16 gr
3/8"	038T	038P	038N	24.5	10.0	16.0	17	30 gr
3/8"	038T	038P	038N	30.0	10.0	16.0	17	50 gr
1/2"	012T	012P	012N	32.5	13.0	21.0	22	60 gr
1/2"	012T	012P	012N	43.5	13.0	21.0	22	85 gr
3/4"	034T	034P	034N	42.0	15.0	32.0	27	190 gr
1"	100T	100P	100N	56.0	17.0	40.0	36	350 gr

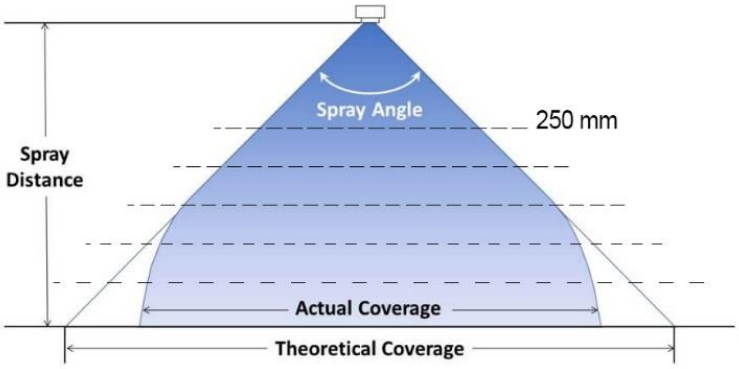
Properties:

Two-Piece Construction
S-Type Whirl Vanes
Non-Clogging Spray Nozzle
Large Free Cross Section
Stable Spray Angle

Material*	Code
Brass	1
S.S.304	2
S.S.316	3

* Different materials are available upon request

α	Spray coverage @ 250 mm
45°	200 mm
60°	280 mm
90°	500 mm
120°	850 mm



Spray angle (α)	Code	Connection [inch]	B Ø [mm]	E Ø [mm]	Flow rate [l/min] P [bar] 0.5	1.0 K factor	2.0	3.0	5.0	7.0	10.0
45°	3L 490 40 . 045	1/8"-1/4"	1.25	1.25	0.57	**0.76**	1.00	1.18	1.44	1.65	1.90
	3L 490 52 . 045	1/8"-1/4"	1.70	1.70	1.15	**1.52**	2.00	2.35	2.89	3.30	3.81
	3L 490 60 . 045	1/4"-3/8"	2.00	2.00	1.81	**2.39**	3.15	3.70	4.54	5.20	6.00
	3L 490 64 . 045	1/4"-3/8"	2.45	2.45	2.30	**3.03**	4.00	4.70	5.77	6.60	7.61
	3L 490 68 . 045	3/8"	2.55	2.55	2.87	**3.79**	5.00	5.88	7.21	8.25	9.52
	3L 490 70 . 045	3/8"	2.65	2.65	3.22	**4.24**	5.60	6.59	8.08	9.24	10.66
	3L 490 72 . 045	3/8"	2.85	2.85	3.62	**4.77**	6.30	7.41	9.09	10.40	11.99
	3L 490 78 . 045	1/2"	3.45	3.45	5.17	**6.82**	9.00	10.58	12.98	14.85	17.12
	3L 490 84 . 045	1/2"	3.80	3.80	7.18	**9.47**	12.50	14.70	18.03	20.63	23.80
60°	3L 490 40 . 060	1/8"-1/4"	1.15	1.15	0.57	**0.76**	1.00	1.18	1.44	1.65	1.90
	3L 490 44 . 060	1/8"-1/4"	1.25	1.25	0.72	**0.95**	1.25	1.47	1.80	2.06	2.38
	3L 490 48 . 060	1/8"-1/4"	1.45	1.45	0.92	**1.21**	1.60	1.88	2.31	2.64	3.05
	3L 490 52 . 060	1/8"-1/4"	1.60	1.60	1.15	**1.52**	2.00	2.35	2.89	3.30	3.81
	3L 490 56 . 060	1/8"-1/4"	1.80	1.80	1.44	**1.89**	2.50	2.94	3.61	4.13	4.76
	3L 490 60 . 060	1/8"-1/4"-3/8"	2.05	2.05	1.81	**2.39**	3.15	3.70	4.54	5.20	6.00

SPADFLOW گروه صنعتی اسپاد فلو SPRAYING SYSTEMS AND NOZZLES

SPADFLOW 3L 490/491

Clog-Resistance Full-Cone Nozzle

Spray Angle (α)	Code	Connection** [inch]	B Ø [mm]	E Ø [mm]	Flow rate [l/min]						
					P [bar]						
					0.5	1.0 K factor	2.0	3.0	5.0	7.0	10.0
60°	3L 490 64 . 060	1/4"-3/8"	2.30	2.30	2.30	**3.03**	4.00	4.70	5.77	6.60	7.61
	3L 490 68 . 060	1/4"-3/8"	2.60	2.60	2.87	**3.79**	5.00	5.88	7.21	8.25	9.52
	3L 490 72 . 060	1/4"-3/8"	2.95	2.80	3.62	**4.77**	6.30	7.41	9.09	10.40	11.99
	3L 490 76 . 060	3/8"	3.25	3.25	4.59	**6.06**	8.00	9.41	11.54	13.20	15.22
	3L 490 80 . 060	3/8"	3.70	3.70	5.74	**7.58**	10.00	11.76	14.43	16.51	19.04
	3L 490 84 . 060	1/2"	4.05	4.05	7.18	**9.47**	12.50	14.70	18.03	20.63	23.80
	3L 490 88 . 060	1/2"	4.65	4.65	9.19	**12.13**	16.00	18.82	23.08	26.41	30.46
	3L 490 92 . 060	3/4"	5.20	5.20	11.49	**15.16**	20.00	23.52	28.85	33.01	38.07
	3L 490 96 . 060	3/4"	5.80	5.80	14.36	**18.95**	25.00	29.40	36.07	41.26	47.59
	3L 491 04 . 060	1"	7.25	7.25	22.97	**30.31**	40.00	47.04	57.71	66.02	76.15
	3L 491 08 . 060	1"	8.15	8.15	28.72	**37.89**	50.00	58.80	72.14	82.53	95.18
90°	3L 490 40 . 090	1/8"-1/4"	1.20	1.20	0.57	**0.76**	1.00	1.18	1.44	1.65	1.90
	3L 490 44 . 090	1/8"-1/4"	1.30	1.30	0.72	**0.95**	1.25	1.47	1.80	2.06	2.38
	3L 490 48 . 090	1/8"-1/4"	1.45	1.45	0.92	**1.21**	1.60	1.88	2.31	2.64	3.05
	3L 490 52 . 090	1/8"-1/4"	1.70	1.55	1.15	**1.52**	2.00	2.35	2.89	3.30	3.81
	3L 490 56 . 090	1/8"-1/4"	1.90	1.90	1.44	**1.89**	2.50	2.94	3.61	4.13	4.76
	3L 490 60 . 090	1/8"-3/8"	2.10	2.05	1.81	**2.39**	3.15	3.70	4.54	5.20	6.00
	3L 490 64 . 090	1/4"-3/8"	2.40	2.40	2.30	**3.03**	4.00	4.70	5.77	6.60	7.61
	3L 490 68 . 090	1/4"-3/8"	2.70	2.70	2.87	**3.79**	5.00	5.88	7.21	8.25	9.52
	3L 490 72 . 090	1/4"-3/8"	3.20	2.80	3.62	**4.77**	6.30	7.41	9.09	10.40	11.99
	3L 490 74 . 090	3/8"	3.15	3.15	4.08	**5.38**	7.10	8.35	10.24	11.72	13.52
	3L 490 76 . 090	3/8"	3.40	3.40	4.59	**6.06**	8.00	9.41	11.54	13.20	15.22
	3L 490 80 . 090	3/8"	3.90	3.90	5.74	**7.58**	10.00	11.76	14.43	16.51	19.04
	3L 490 84 . 090	3/8"	4.65	4.00	7.18	**9.47**	12.50	14.70	18.03	20.63	23.80
	3L 490 88 . 090	1/2"	5.45	4.50	9.19	**12.13**	16.00	18.82	23.08	26.41	30.46
	3L 490 92 . 090	1/2"	5.90	4.50	11.49	**15.16**	20.00	23.52	28.85	33.01	38.07
	3L 490 96 . 090	*1/2"*-3/4"	6.55	4.85	14.36	**18.95**	25.00	29.40	36.07	41.26	47.59
	3L 491 00 . 090	3/4"	7.55	5.50	18.09	**23.87**	31.50	37.05	45.45	51.99	59.97
	3L 491 04 . 090	3/4"	8.60	6.60	22.97	**30.31**	40.00	47.04	57.71	66.02	76.15
	3L 491 08 . 090	1"	9.45	7.25	28.72	**37.89**	50.00	58.80	72.14	82.53	95.18
	3L 491 12 . 090	1"	10.40	8.00	36.18	**47.75**	63.00	74.09	90.89	103.98	119.93
	3L 491 14 . 090	1"	11.00	7.50	40.78	**53.81**	71.00	83.50	102.43	117.19	135.16
120°	3L 490 36 . 120	1/8"-1/4"	0.85	0.65	0.36	**0.48**	0.63	0.74	0.91	1.04	1.20
	3L 490 40 . 120	1/8"-1/4"	1.20	1.20	0.57	**0.76**	1.00	1.18	1.44	1.65	1.90
	3L 490 44 . 120	1/8"-1/4"	1.30	1.30	0.72	**0.95**	1.25	1.47	1.80	2.06	2.38
	3L 490 48 . 120	1/8"-1/4"	1.45	1.45	0.92	**1.21**	1.60	1.88	2.31	2.64	3.05
	3L 490 52 . 120	1/8"-1/4"	1.70	1.70	1.15	**1.52**	2.00	2.35	2.89	3.30	3.81
	3L 490 56 . 120	1/8"-1/4"	1.90	1.90	1.44	**1.89**	2.50	2.94	3.61	4.13	4.76
	3L 490 60 . 120	1/8"-1/4"	2.10	2.05	1.81	**2.39**	3.15	3.70	4.54	5.20	6.00
	3L 490 64 . 120	1/4"-3/8"	2.40	2.40	2.30	**3.03**	4.00	4.70	5.77	6.60	7.61
	3L 490 68 . 120	1/4"-3/8"	2.75	2.75	2.87	**3.79**	5.00	5.88	7.21	8.25	9.52
	3L 490 72 . 120	1/4"-3/8"	3.20	2.80	3.62	**4.77**	6.30	7.41	9.09	10.40	11.99
	3L 490 74 . 120	3/8"	3.20	3.20	4.08	**5.38**	7.10	8.35	10.24	11.72	13.52
	3L 490 76 . 120	3/8"	3.45	3.45	4.59	**6.44**	8.00	9.41	11.54	13.20	15.22
	3L 490 80 . 120	3/8"	3.90	3.90	5.74	**7.58**	10.00	11.76	14.43	16.51	19.04
	3L 490 84 . 120	*3/8"*	4.70	4.00	7.18	**9.47**	12.50	14.70	18.03	20.63	23.80
	3L 490 88 . 120	1/2"	5.10	4.50	9.19	**12.13**	16.00	18.82	23.08	26.41	30.46
	3L 490 92 . 120	1/2"	5.80	4.75	11.49	**15.16**	20.00	23.52	28.85	33.01	38.07
	3L 490 96 . 120	*1/2"*-3/4"	6.65	4.85	14.36	**18.95**	25.00	29.40	36.07	41.26	47.59
	3L 491 04 . 120	3/4"	9.20	5.85	22.97	**30.31**	40.00	47.04	57.71	66.02	76.15
	3L 491 12 . 120	1"	10.80	7.75	36.18	**47.75**	63.00	74.09	90.89	103.98	119.93
	3L 491 14 . 120	1"	11.40	7.65	40.78	**53.81**	71.00	83.50	102.43	117.19	135.16