

The criteria for Nozzle Selection:

1- Impact

- | Impact surface and jet shape
- | Spraying distance
- | Pressure
- | Flow Rate
- | Spray depth

2- Spray angle and spraying behaviour

3- Liquid distribution

4- Droplet sizes

5- Factors affecting the temperature behaviour of nozzles materials

6- Material and wear

To determine the appropriate nozzles for you, the following criteria should be taken into consideration.

1- Impact

When a liquid jet applied on a surface, the force of impact has the key role in surface technology. The impact is calculated as the ratio of force to the surface.

The impact can be changed according to following parameters.

Impact surface and spray angle

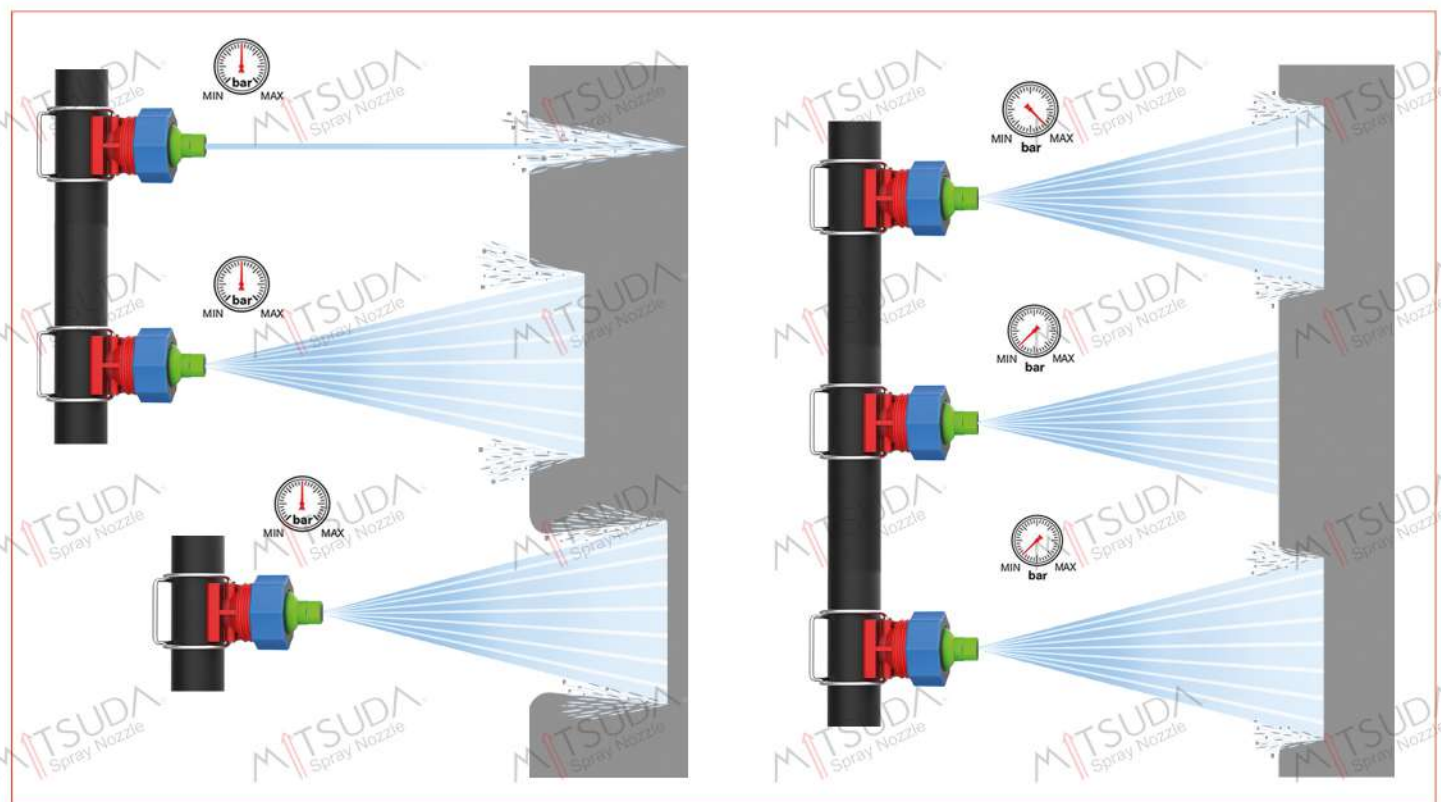
The impact surface means the area that the droplet strikes. The smaller surface area leads to get higher impact values. Examples for the nozzles with high impact are flat fan nozzles and solid stream nozzles.

Pressure

Increased connected pressure leads to an increased spray impact. If the pressure is doubled while keeping the flow rate same, the impact is doubled.

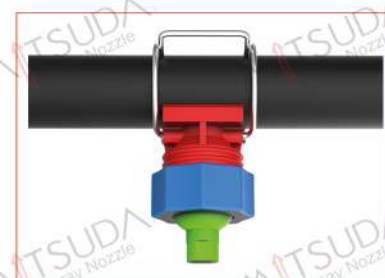
Flow Rate

If the flow rate is increased through using a larger nozzle, the impact is increased (in case of keeping the order parameters such as spray angle, pressure medium same).



Spray Depth

When using flat fan nozzles, the impact changes according to spray quality. For instance, through Mitsuda high pressure flat fan nozzles or a high flow quality, a narrower spray depth can be ensured. If other variables kept same (flow rate, pressure, medium, spray angle), a narrower spray depth leads to a higher impact.



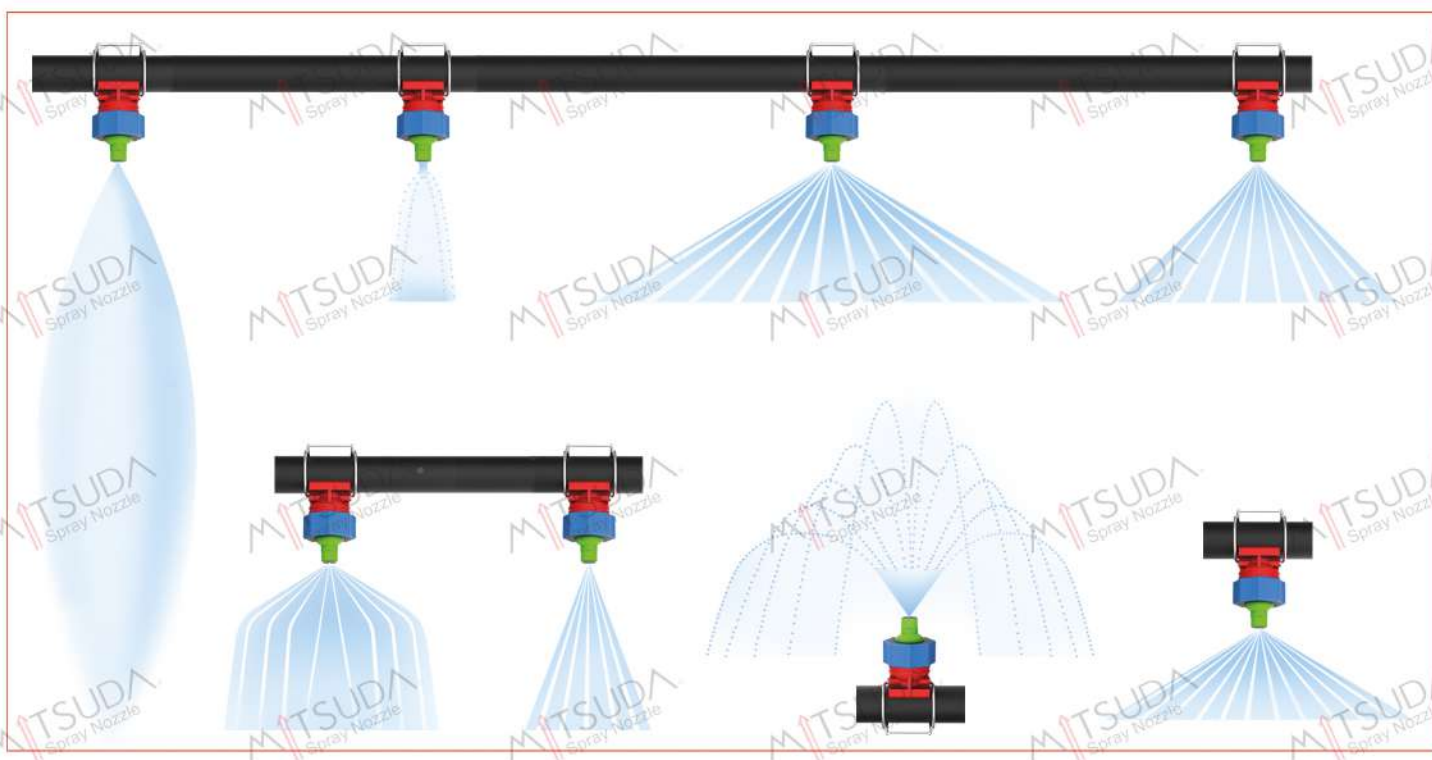
- | Through using a flat fan nozzle, doubling the distance leads to a quadrupling of the sprayed surface area.
- | For atomization nozzles, if the distance is increased, the sprayed surface area also enlarges. This results in decreased impact on the surface.
- | Regarding flat fan nozzles, if spraying distance is doubled, the sprayed surface area quadruples. As a result, the impact decreases four-fold.

2-Spray angle and spraying systems

There are different types of single-fluid nozzles with spray angles from 0 degree (solid jet nozzles) to 360 degree (tank cleaning nozzles). According to its type, single-fluid nozzles may spray liquid as a flat fan, full cone or hollow cone.

The solid jet nozzle provides a closed jet impact which hits a focalized point. The jet impact breaks up after some distance available. Twin-fluid nozzles, have a narrow spray angle of nearly 20 degree because of the high speed where the compressible medium available. If the distance from the nozzles enlarges, the spraying becomes less sharply. Twin-fluid nozzles produce flat fan or full cone spraying in general, but some different spray patterns might also be provided.

Distance	Area	Impact
h	A	I
1.5 x h	2.25 x A	I / 2.25
2 x h	4 x A	I / 4
3 x h	9 x A	I / 9
4 x h	16 x A	I / 16



Nominal Diameter	Major Diameter	Tapping Drill Size	TPI	Pitch
	mm	mm		mm
1/16"	7.722	6.60	28	0.907
1/8"	9.728	8.80	28	0.907
1/4"	13.157	11.80	19	1.337
3/8"	16.662	15.25	19	1.337
1/2"	20.955	19.00	14	1.814
5/8"	22.911	21.00	14	1.814
3/4"	26.441	24.50	11	1.814
1"	33.249	30.75	11	2.309
1-1/4"	41.910	39.5	11	2.309
1-1/2"	47.803	45.25	11	2.309
2"	59.614	57.00	11	2.309
2-1/2"	75.184	72.60	11	2.309
3"	87.884	85.30	11	2.309
4"	113.030	110.40	11	2.309
5"	138.430	135.473	11	2.309
6"	163.830	160.873	11	2.309

PPRC Pipe Diameter	DN	Inch
Ø20	DN15	1/2"
Ø25	DN20	3/4"
Ø32	DN25	1"
Ø40	DN32	1-1/4"
Ø50	DN40	1-1/2"
Ø63	DN50	2"
Ø75	DN65	2-1/2"
Ø90	DN80	3"
Ø110	-	-
Ø125	DN100	4"

