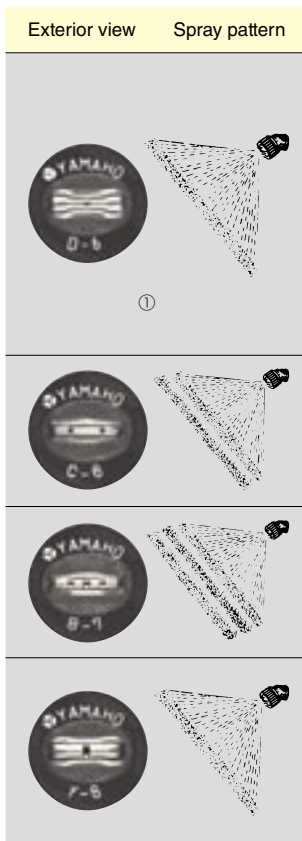


Spray Pattern of Each Disks of New Sector Spray Nozzle Disks



New Sector Spray Nozzle Disk



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (1.0MPa) | Spray Volume (1.5MPa) | Spray angle |
|------------|------------|--------------------------------|-----------------------|-----------------------|--------------|
| * 49 12 58 | SU-02-80MS | 45 | 0.19 | 0.23 | approx. 80° |
| * 49 12 59 | SU-04100MS | 55 | 0.32 | 0.39 | approx. 100° |
| 49 12 60 | NN-D-35S | 55 | 0.57 | 0.70 | approx. 100° |
| 49 12 61 | NN-D-5S | 55 | 0.65 | 0.79 | approx. 100° |
| 49 12 62 | NN-D-6S | 55 | 0.83 | 1.01 | approx. 100° |
| 49 12 63 | NN-D-7S | 60 | 1.00 | 1.22 | approx. 100° |
| 49 12 64 | NN-D-8S | 60 | 1.24 | 1.52 | approx. 100° |
| 49 12 65 | NN-D-9S | 60 | 1.42 | 1.75 | approx. 100° |
| 49 12 66 | NN-C-35S | 50 | 1.21 | 1.48 | approx. 100° |
| 49 12 67 | NN-C-6S | 55 | 1.78 | 2.18 | approx. 100° |
| 49 12 68 | NN-B-6S | 50 | 2.78 | 3.40 | approx. 100° |
| 49 12 69 | NN-B-7S | 40 | 2.99 | 3.67 | approx. 100° |
| 49 12 70 | NN-Y-6S | 60 | 1.72 | 2.10 | approx. 90° |
| 49 12 71 | NN-Y-8S | 65 | 2.36 | 2.89 | approx. 90° |
| 49 12 72 | NN-Y-10S | 80 | 3.00 | 3.68 | approx. 90° |
| 49 12 73 | NN-WY-10S | 75 | 3.21 | 3.93 | approx. 110° |
| 49 12 74 | NN-Y-15S | 105 | 4.07 | 4.98 | approx. 90° |

*Please note that these items are not for use on knapsack power sprayers, and that spraying pressure should be under 2.0MPa.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-------------------------------------|-----------|-----|
| 1 | 49 12 | New Sector Spray Nozzle Disk Type S | 10 | |

New Sector Spray Nozzle Disk for Manual Sprayers Type S



| Code No. | TIP No. | Average Drop Size (μm)(0.2MPa) | Spray Volume (L/min)(0.1MPa) | Spray Volume (L/min)(0.2MPa) | Spray Volume (L/min)(0.3MPa) | Spray Angle (0.2MPa) |
|------------|-----------|--------------------------------|------------------------------|------------------------------|------------------------------|----------------------|
| 49 12 62 | NN-D-6S | 150 | 0.26 | 0.37 | 0.45 | approx. 85° |
| 49 12 64 | NN-D-8S | 170 | 0.39 | 0.56 | 0.68 | approx. 85° |
| 49 12 70 | NN-Y-6S | 220 | 0.54 | 0.77 | 0.94 | approx. 80° |
| 49 12 75 * | NN-SL-10S | 200 | 0.69 | 0.98 | 1.20 | approx. 120° |
| 49 12 71 | NN-Y-8S | 250 | 0.75 | 1.06 | 1.29 | approx. 80° |
| 49 12 72 | NN-Y-10S | 320 | 0.95 | 1.34 | 1.65 | approx. 100° |
| 49 12 74 | NN-Y-15S | 440 | 1.29 | 1.82 | 2.23 | approx. 100° |

1. This item (NN-SL-10) is our standard nozzle disk for manual sprayers.
2. Items except NN-SL-10 are basically for motor sprayers; however, by applying a regulating plug, these items can be used on manual sprayers.
3. Use of either of the above nozzle disk at a low pressured manual sprayer, Regulating Plug E is required for a fan-shaped spray pattern.
4. Regulating Plug ES is for exclusive use with New Sector Spray Nozzle Disk Type S. Not compatible with other disks.

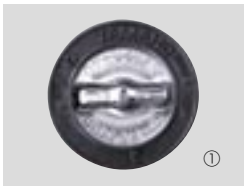
ULC Nozzle Disk (Patented)



| Code No. | TIP No. | Average Drop Size (μm)(0.3MPa) | Spray Volume (L/min)(0.2MPa) | Spray Volume (L/min)(0.3MPa) | Spray Volume (L/min)(0.4MPa) | Spray Angle (0.3MPa) |
|----------|-----------|--------------------------------|------------------------------|------------------------------|------------------------------|----------------------|
| 49 26 42 | UL-08-80C | 170 | 0.69 | 0.84 | 0.97 | approx. 75° |
| 49 26 43 | UL-12-80C | 160 | 0.98 | 1.20 | 1.39 | approx. 80° |
| 49 26 46 | UL-24110C | 190 | 1.96 | 2.40 | 2.77 | approx. 105° |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|---------------------------------------------------------|-----------|-----|
| 1 | 49 12 | New Sector Spray Nozzle Disk for Manual Sprayers Type S | 10 | |
| 2 | 91 51 61 | Regulating Plug ES | 10 | |
| 3 | 49 26 43 | ULC Nozzle Disk | 10 | |

SVK Nozzle Disk (Patented)

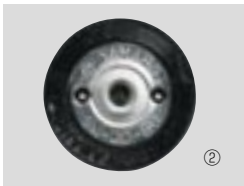


| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|----------|-----------|--------------------------------|------------------------------|------------------------------|-------------|
| 49 26 20 | SV-23-40K | 190 | 1.89 | 2.32 | approx. 38° |
| 49 26 21 | SV-30-55K | 160 | 2.46 | 3.01 | approx. 55° |
| 49 26 22 | SV-38-50K | 230 | 3.09 | 3.78 | approx. 48° |
| 49 26 23 | SV-49-45K | 180 | 4.03 | 4.94 | approx. 45° |

Imperforate Disk



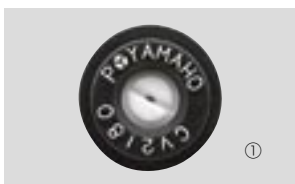
SVC Nozzle Disk (Patented)



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|----------|-----------|--------------------------------|------------------------------|------------------------------|-------------|
| 49 26 29 | SV-07-80C | 75 | 0.57 | 0.7 | approx. 80° |
| 49 26 30 | SV-10-80C | 100 | 0.82 | 1.00 | approx. 80° |
| 49 26 31 | SV-20-80C | 130 | 1.67 | 2.05 | approx. 80° |
| 49 26 32 | SV-30-80C | 145 | 2.45 | 3.00 | approx. 80° |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|--------------------|-----------|-----|
| 1 | 49 26 | SVK Nozzle Disk | 10 | |
| 2 | 49 26 | SVC Nozzle Disk | 10 | |
| 3 | 49 11 43 | Imperforate Disk | 10 | |
| 4 | 90 12 05 | Imperforate Disk P | 10 | |

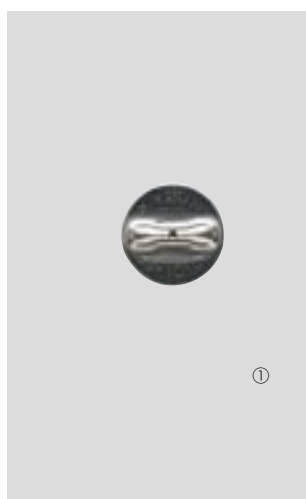
Ceramic Tip Type S



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|----------|---------|--------------------------------|------------------------------|------------------------------|-------------|
| 49 21 18 | CV1080S | 80 | 0.86 | 1.05 | approx. 80° |
| 49 21 19 | CV1780S | 110 | 1.43 | 1.75 | approx. 80° |
| 49 21 20 | CV2180S | 120 | 1.71 | 2.10 | approx. 80° |
| 49 21 21 | CV2980S | 160 | 2.34 | 2.89 | approx. 80° |
| 49 21 22 | CV3680S | 180 | 3.00 | 3.68 | approx. 80° |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|--------------------|-----------|-----|
| 1 | 49 21 | Ceramic Tip S-Type | 10 | |

SU Nozzle Disk



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle | Equivalent |
|------------|----------|--------------------------------|------------------------------|------------------------------|--------------|------------|
| * 49 31 11 | SU-02-80 | 45 | 0.19 | 0.23 | approx. 80° | SU-02-80M |
| * 49 31 12 | SU-04100 | 55 | 0.32 | 0.39 | approx. 100° | SU-04100M |
| 49 31 13 | SU-07100 | 55 | 0.57 | 0.70 | approx. 100° | NN-D-35 |
| 49 31 14 | SU-08100 | 55 | 0.65 | 0.79 | approx. 100° | NN-D-5 |
| 49 31 15 | SU-10100 | 55 | 0.83 | 1.01 | approx. 100° | NN-D-6 |
| 49 31 16 | SU-12100 | 60 | 1.00 | 1.22 | approx. 100° | NN-D-7 |
| 49 31 17 | SU-15100 | 60 | 1.24 | 1.52 | approx. 100° | NN-D-8 |
| 49 31 18 | SU-17100 | 60 | 1.42 | 1.75 | approx. 100° | NN-D-9 |
| 49 31 19 | SU-21-90 | 60 | 1.72 | 2.10 | approx. 90° | NN-Y-6 |
| 49 31 20 | SU-29-90 | 65 | 2.36 | 2.89 | approx. 90° | NN-Y-8 |
| 49 31 21 | SU-36-90 | 80 | 3.00 | 3.68 | approx. 90° | NN-Y-10 |
| 49 31 22 | SU-36110 | 75 | 3.21 | 3.93 | approx. 110° | NN-WY-10 |

*) Please note that these items are not for use on knapsack power sprayers, and that spraying pressure should be under 2.0MPa.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|----------------|-----------|-----|
| 1 | 49 31 | SU Nozzle Disk | 10 | |

Curved Nozzle Tip

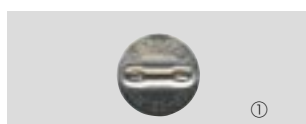


| Code No. | Tip | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|------------|-------|----------|--------------------------------|------------------------------|------------------------------|--------------|
| * 49 29 11 | SU-2 | N-CSU-2 | 45 | 0.19 | 0.23 | approx. 80° |
| * 49 29 12 | SU-4 | N-CSU-4 | 55 | 0.32 | 0.39 | approx. 100° |
| 49 29 13 | SU-7 | N-CSU-7 | 55 | 0.57 | 0.70 | approx. 100° |
| 49 29 14 | SU-8 | N-CSU-8 | 55 | 0.65 | 0.79 | approx. 100° |
| 49 29 15 | SU-10 | N-CSU-10 | 55 | 0.83 | 1.01 | approx. 100° |
| 49 29 16 | SU-12 | N-CSU-12 | 60 | 1.00 | 1.22 | approx. 100° |
| 49 29 17 | SU-15 | N-CSU-15 | 60 | 1.24 | 1.52 | approx. 100° |
| 49 29 18 | SU-17 | N-CSU-17 | 60 | 1.42 | 1.75 | approx. 100° |
| 49 29 19 | SU-21 | N-CSU-21 | 60 | 1.72 | 2.10 | approx. 90° |
| 49 29 20 | SU-29 | N-CSU-29 | 65 | 2.36 | 2.89 | approx. 90° |
| 49 29 21 | SU-36 | N-CSU-36 | 80 | 3.00 | 3.68 | approx. 90° |
| 49 29 22 | SU-39 | N-CSU-39 | 75 | 3.21 | 3.93 | approx. 110° |

*) Please note that these items are not for use on knapsack power sprayers, and that spraying pressure should be under 2.0MPa.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-------------------|-----------|---------------------|
| 1 | 49 29 | Curved Nozzle Tip | 10 | Item made on demand |

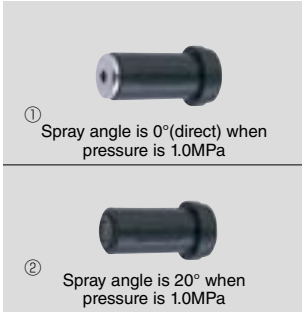
SM Disk (for Fine Mist Nozzle Type 5)



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Volume (L/min)(2.0MPa) | Spray Angle |
|----------|-----------|--------------------------------|------------------------------|------------------------------|------------------------------|-------------|
| 49 32 11 | SM-95-30 | 50 | 0.079 | 0.096 | 0.111 | approx. 30° |
| 49 32 12 | SM-125-65 | 50 | 0.101 | 0.126 | 0.145 | approx. 65° |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-----------------------------------|-----------|-----|
| 1 | 49 29 | SM Disk (for Fine Mist Nozzle #5) | 10 | |

KIRINASHI (Ultra Low-Drift) Powerful Nozzle Tip



| Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(1.0MPa) | Spray Volume (L/min)(0.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|----------|----------|----------|--------------------------------|------------------------------|------------------------------|------------------------------|-------------|
| 49 13 11 | N-KE-16B | φ 1.6 | 780 | 2.74 | 3.87 | 4.74 | 0°(Direct) |
| 49 13 12 | N-KE-19B | φ 1.9 | 780 | 3.54 | 5.01 | 6.14 | 0°(Direct) |
| 49 13 13 | N-KE-20B | φ 2.0 | 860 | 4.04 | 5.72 | 7.00 | 0°(Direct) |
| 49 13 14 | N-KE-24B | φ 2.4 | 1160 | 5.73 | 8.10 | 9.92 | 0°(Direct) |
| 49 13 16 | N-KF-11B | φ 1.1 | 590 | 1.20 | 1.69 | 2.07 | approx. 20° |
| 49 13 23 | N-KF-13B | φ 1.3 | 600 | 1.68 | 2.38 | 2.91 | approx. 20° |
| 49 13 17 | N-KF-14B | φ 1.4 | 610 | 1.95 | 2.76 | 3.38 | approx. 20° |
| 49 13 18 | N-KF-15B | φ 1.5 | 600 | 2.22 | 3.14 | 3.84 | approx. 20° |
| 49 13 19 | N-KF-17B | φ 1.7 | 600 | 2.91 | 4.12 | 5.04 | approx. 20° |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-------------------------------------|-----------|---------------------|
| 1 | 49 13 | Tip for KIRINASHI Powerful: Type KE | 10 | Item made on demand |
| 2 | 49 13 | Tip for KIRINASHI Powerful: Type KF | 10 | Item made on demand |

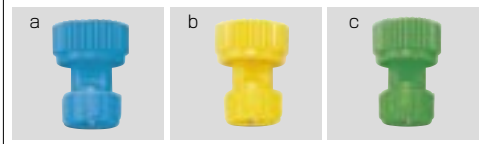
KIRINASHI (Ultra Low-Drift) Powerful Nozzle Tip

KIRINASHI (Ultra Low-Drift) Sector Spray Nozzle Tips are red.



| Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(1.0MPa) | Spray Volume (L/min)(0.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Nozzle Disk | Spray Angle |
|----------|----------|----------|--------------------------------|------------------------------|------------------------------|------------------------------|-------------|--------------|
| 49 16 11 | N-KA-4R | φ 0.4 | 510 | 0.16 | 0.22 | 0.27 | SR-2A | approx. 100° |
| 49 16 12 | N-KA-5R | φ 0.5 | 480 | 0.25 | 0.35 | 0.43 | SR-3A | approx. 100° |
| 49 16 13 | N-KA-6R | φ 0.6 | 460 | 0.36 | 0.51 | 0.62 | SR-10 | approx. 90° |
| 49 16 14 | N-KA-7R | φ 0.7 | 570 | 0.48 | 0.68 | 0.83 | SR-4 | approx. 100° |
| 49 16 15 | N-KA-8R | φ 0.8 | 560 | 0.64 | 0.90 | 1.10 | SR-4 | approx. 100° |
| 49 16 16 | N-KA-9R | φ 0.9 | 480 | 0.80 | 1.13 | 1.39 | SR-4 | approx. 100° |
| 49 16 17 | N-KA-10R | φ 1.0 | 420 | 1.00 | 1.41 | 1.73 | SR-4 | approx. 100° |
| 49 16 18 | N-KA-11R | φ 1.1 | 440 | 1.20 | 1.69 | 2.07 | SR-5 | approx. 100° |
| 49 16 19 | N-KA-12R | φ 1.2 | 540 | 1.46 | 2.07 | 2.53 | SR-6 | approx. 110° |
| 49 16 20 | N-KA-13R | φ 1.3 | 410 | 1.68 | 2.38 | 2.91 | SR-6 | approx. 110° |
| 49 16 21 | N-KA-14R | φ 1.4 | 400 | 1.95 | 2.76 | 3.38 | SR-6 | approx. 110° |
| 49 16 22 | N-KA-15R | φ 1.5 | 350 | 2.22 | 3.14 | 3.84 | SR-6 | approx. 110° |

<Round Tip for Power Sprayers>



Round Tip

| Photo No. | Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(0.7MPa) | Spray Volume (L/min)(0.7MPa) | Spray Volume (L/min)(1.0MPa) | Nozzle Disk | Spray Angle |
|-----------|----------|------------|----------|--------------------------------|------------------------------|------------------------------|-------------|--------------|
| a | 49 22 12 | N-KA-055SB | φ 0.55 | 750 | 0.36 | 0.43 | SR-2 | approx. 110° |
| b | 49 22 14 | N-KA-6SY | φ 0.6 | 750 | 0.42 | 0.51 | SR-3 | approx. 110° |
| c | 49 22 16 | N-KA-8G | φ 0.8 | 630 | 0.75 | 0.90 | SR-6 | approx. 110° |

※ Please do not use other nozzle disks than authorized disks on KIRINASHI nozzles. Please also note that replacing disks will not change the Flow Rate.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-----------------------------------------------------|-----------|---------------------|
| 1 | 49 16 | KIRINASHI (Ultra Low-Drift) Sector Spray Nozzle Tip | 10 | Item made on demand |
| 2 | 49 22 | Round Tip for Power Sprayers | 10 | |

Round Tip for Manual Sprayers



KIRINASHI (Ultra Low-Drift) Sector Spray Nozzle Tip for Manual Sprayers



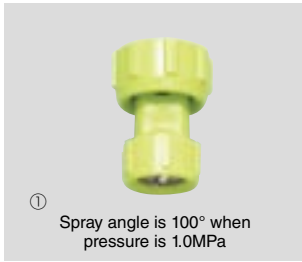
| Photo No. | Code No. | TIP No. | Nozzle φ | Ave. Drop Size (μm)(0.2MPa) | Spray Vol. (L/min)(0.1MPa) | Spray Vol. (L/min)(0.2MPa) | Nozzle Disk | Spray Angle |
|-----------|----------|------------|----------|-----------------------------|----------------------------|----------------------------|-------------|--------------|
| a | 49 22 11 | N-KAL-08SB | φ 0.9 | 660 | 0.36 | 0.51 | SR-1 | approx. 110° |
| b | 49 22 13 | N-KAL-f1SY | φ 1.1 | 590 | 0.53 | 0.76 | SR-5 | approx. 110° |
| c | 49 22 15 | N-KAL-13G | φ 1.3 | 750 | 0.75 | 1.06 | SR-7 | approx. 110° |

| Photo No. | Code No. | TIP No. | Nozzle φ | Ave. Drop Size (μm)(0.2MPa) | Spray Vol. (L/min)(0.1MPa) | Spray Vol. (L/min)(0.2MPa) | Nozzle Disk | Spray Angle |
|-----------|----------|-----------|----------|-----------------------------|----------------------------|----------------------------|-------------|-------------|
| d | 49 16 23 | N-KAL-14R | φ 1.4 | 740 | 0.87 | 1.23 | SR-6 | approx. 90° |
| | 49 16 24 | N-KAL-15R | φ 1.5 | 670 | 0.99 | 1.40 | SR-6 | approx. 90° |

※ Please do not use other nozzle disks than authorized disks on KIRINASHI nozzles. Please also note that replacing disks will not change the Flow Rate.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-------------------------------------------------------------------------|-----------|-----|
| 1 | 49 22 | Round Tip for Manual Sprayers | 10 | |
| 2 | 49 16 | KIRINASHI (Ultra Low-Drift) Sector Spray Nozzle Tip for Manual Sprayers | 10 | |

KIRINASHI (Ultra Low-Drift) ES Tip



| Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Nozzle Disk | Spray Angle |
|----------|---------|----------|--------------------------------|------------------------------|------------------------------|-------------|--------------|
| 49 17 15 | N-ES-5 | φ 0.5 | 320 | 0.35 | 0.43 | SR-1A | approx. 100° |
| 49 17 16 | N-ES-6 | φ 0.6 | 350 | 0.51 | 0.62 | KS-8 | approx. 100° |
| 49 17 17 | N-ES-7 | φ 0.7 | 320 | 0.68 | 0.83 | KS-9 | approx. 90° |
| 49 17 18 | N-ES-8 | φ 0.8 | 300 | 0.90 | 1.10 | KS-10 | approx. 100° |
| 49 17 19 | N-ES-9 | φ 0.9 | 290 | 1.13 | 1.39 | KS-11 | approx. 100° |
| 49 17 20 | N-ES-10 | φ 1.0 | 280 | 1.41 | 1.73 | KS-11 | approx. 100° |
| 49 17 21 | N-ES-11 | φ 1.1 | 280 | 1.69 | 2.07 | SR-4 | approx. 110° |

※ Please do not use other nozzle disks than authorized disks on KIRINASHI nozzles. Please also note that replacing disks will not change the Flow Rate.

KIRINASHI (Ultra Low-Drift) KS Tip

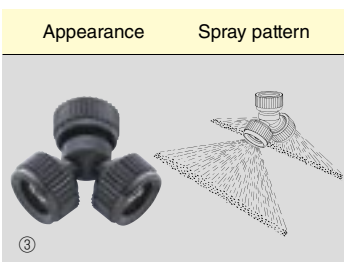


| Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Nozzle Disk | Spray Angle |
|----------|---------|----------|--------------------------------|------------------------------|------------------------------|-------------|-------------|
| 49 27 14 | N-KS-7 | φ 0.7 | 380 | 0.68 | 0.83 | KS-7 | approx. 60° |
| 49 27 15 | N-KS-8 | φ 0.8 | 260 | 0.90 | 1.10 | KS-8 | approx. 60° |
| 49 27 16 | N-KS-9 | φ 0.9 | 410 | 1.13 | 1.39 | KS-9 | approx. 60° |
| 49 27 17 | N-KS-10 | φ 1.0 | 420 | 1.41 | 1.73 | KS-10 | approx. 60° |
| 49 27 18 | N-KS-11 | φ 1.1 | 450 | 1.69 | 2.07 | KS-11 | approx. 60° |
| 49 27 19 | N-KS-12 | φ 1.2 | 420 | 2.07 | 2.53 | KS-12 | approx. 60° |
| 49 27 20 | N-KS-13 | φ 1.3 | 430 | 2.38 | 2.91 | KS-13 | approx. 60° |
| 49 27 21 | N-KS-14 | φ 1.4 | 450 | 2.76 | 3.38 | KS-14 | approx. 60° |
| 49 27 22 | N-KS-15 | φ 1.5 | 440 | 3.14 | 3.84 | KS-15 | approx. 60° |

※ Please do not use other nozzle disks than authorized disks on KIRINASHI nozzles. Please also note that replacing disks will not change the Flow Rate. Please also note these items require seals (HF-708, HF-709) for proper performance.

Y Tip for New Sector Spray

This Y-shaped tip enables a flat-fan shaped spray pattern in two directions, thereby

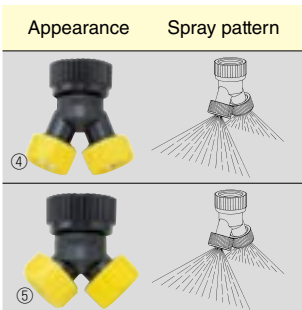


| Code No. | TIP No. | Ave. Drop Size (μm)(1.5MPa) | Item | Y-Angle | Spray Code | Spray Vol. (L/min)(1.0MPa) | Spray Vol. (L/min)(1.5MPa) | Spray Vol. (L/min)(2.0MPa) | Spray Angle |
|------------|--------------|-----------------------------|--------------|---------|------------|----------------------------|----------------------------|----------------------------|--------------|
| * 49 12 50 | N-Y90-SU02MS | 45 | N-Y90-SU02MS | 90° | SU-02-80M | 0.38 | 0.46 | 0.54 | approx. 80° |
| * 49 12 51 | N-Y90-SU04MS | 55 | N-Y90-SU04MS | 90° | SU-04100M | 0.64 | 0.78 | 0.90 | approx. 100° |
| 49 12 52 | N-Y90-D35S | 55 | N-Y90-D35S | 90° | NN-D-35 | 1.14 | 1.40 | 1.62 | approx. 100° |
| 49 12 53 | N-Y90-D5S | 55 | N-Y90-D5S | 90° | NN-D-5 | 1.30 | 1.58 | 1.82 | approx. 100° |
| 49 12 54 | N-Y90-D6S | 55 | N-Y90-D6S | 90° | NN-D-6 | 1.66 | 2.02 | 2.34 | approx. 100° |
| 49 12 55 | N-Y90-D7S | 60 | N-Y90-D7S | 90° | NN-D-7 | 2.00 | 2.44 | 2.82 | approx. 100° |
| 49 12 56 | N-Y90-D8S | 60 | N-Y90-D8S | 90° | NN-D-8 | 2.48 | 3.04 | 3.56 | approx. 100° |
| 49 12 57 | N-Y90-D9S | 60 | N-Y90-D9S | 90° | NN-D-9 | 2.84 | 3.50 | 4.04 | approx. 100° |

* Please note that these items are not for use on knapsack power sprayers, and that spraying pressure should be under 2.0MPa.

Y-shaped Tip for KIRINASHI

KIRINASHI nozzles feature minimal drift, which adds for the operator's safety. By applying this Y-shaped tip, the sprayer will even ensure high effectiveness. Available in 45 and 90 degrees.



| Code No. | TIP No. | Ave. Drop Size (μm)(1.5MPa) | Item | Y-Angle | Nozzle φ | Spray Vol. (L/min)(1.0MPa) | Spray Vol. (L/min)(1.5MPa) | Nozzle Disk | Spray Angle |
|----------|------------|-----------------------------|------------|---------|----------|----------------------------|----------------------------|-------------|--------------|
| 49 15 50 | N-KAY45-7 | 400 | N-KAY45-7 | 45° | φ 0.7 | 0.68 | 0.83 | SR-3A | approx. 100° |
| 49 15 51 | N-KAY45-8 | 500 | N-KAY45-8 | 45° | φ 0.8 | 0.90 | 1.10 | SR-10 | approx. 100° |
| 49 15 52 | N-KAY45-9 | 470 | N-KAY45-9 | 45° | φ 0.9 | 1.13 | 1.39 | SR-10 | approx. 100° |
| 49 15 53 | N-KAY45-10 | 470 | N-KAY45-10 | 45° | φ 1.0 | 1.41 | 1.73 | SR-8 | approx. 100° |
| 49 15 54 | N-KAY45-11 | 440 | N-KAY45-11 | 45° | φ 1.1 | 1.69 | 2.07 | SR-2 | approx. 100° |
| 49 15 60 | N-KAY90-7 | 400 | N-KAY90-7 | 90° | φ 0.7 | 0.68 | 0.83 | SR-3A | approx. 100° |
| 49 15 61 | N-KAY90-8 | 500 | N-KAY90-8 | 90° | φ 0.8 | 0.90 | 1.10 | SR-10 | approx. 100° |
| 49 15 62 | N-KAY90-9 | 470 | N-KAY90-9 | 90° | φ 0.9 | 1.13 | 1.39 | SR-10 | approx. 100° |
| 49 15 63 | N-KAY90-10 | 470 | N-KAY90-10 | 90° | φ 1.0 | 1.41 | 1.73 | SR-8 | approx. 100° |
| 49 15 64 | N-KAY90-11 | 440 | N-KAY90-11 | 90° | φ 1.1 | 1.69 | 2.07 | SR-2 | approx. 100° |

※ Please do not use other nozzle disks than authorized disks on KIRINASHI nozzles. Please also note that replacing disks will not change the Flow Rate.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|------------------------------------------------|-----------|---------------------|
| 1 | 49 17 | KIRINASHI (Ultra Low-Drift) ES Tip | 10 | Item made on demand |
| 2 | 49 27 | KIRINASHI (Ultra Low-Drift) KS Tip | 10 | Item made on demand |
| 3 | 49 12 | Y-shaped Sector Spray Nozzle Tip | 10 | Item made on demand |
| 4 | 49 15 | Y-shaped KIRINASHI (Ultra Low-Drift) Tip (45°) | 10 | Item made on demand |
| 5 | 49 12 | Y-shaped KIRINASHI (Ultra Low-Drift) Tip (90°) | 10 | Item made on demand |

Nozzle Disk for ZOOM Boom Sprayers

● NN-ZV



| Code No. | Specification Item | Average Drop Size (μm)(1.5MPa) | | Spray Volume (L/min)(1.5MPa) | | Spray Reach(m)(1.5MPa) | | Spray Angle |
|----------|--------------------|--------------------------------|--------------|------------------------------|--------------|------------------------|--------------|----------------|
| | | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | |
| 49 28 11 | NN-ZV-12 | 80 | 420 | 2.42 | 2.52 | 3.5 | 6.0 | approx. 5-60° |
| 49 28 12 | NN-ZV-14 | 85 | 420 | 3.64 | 3.74 | 3.5 | 7.0 | approx. 10-65° |
| 49 28 13 | NN-ZV-16 | 95 | 360 | 4.85 | 5.76 | 4.0 | 7.5 | approx. 12-70° |
| 49 28 14 | * NN-ZV-20 | 95 | 360 | 5.76 | 7.17 | 4.0 | 8.0 | approx. 15-80° |
| 49 28 15 | NN-ZV-23 | 110 | 400 | 7.17 | 9.39 | 4.5 | 8.5 | approx. 20-85° |
| 49 28 16 | NN-ZV-25 | 110 | 350 | 7.47 | 10.91 | 4.5 | 9.0 | approx. 25-90° |

* NN-ZV-20 abrasion-proof treatment

● NN-WZV



| Code No. | Specification Item | Average Drop Size (μm)(1.5MPa) | | Spray Volume (L/min)(1.5MPa) | | Spray Reach(m)(1.5MPa) | | Spray Angle |
|----------|--------------------|--------------------------------|--------------|------------------------------|--------------|------------------------|--------------|-----------------|
| | | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | |
| 49 28 23 | NN-WZV-16 | 100 | 300 | 5.55 | 5.76 | 3.0 | 6.0 | approx. 25-80° |
| 49 28 24 | NN-WZV-20 | 100 | 300 | 5.76 | 7.17 | 3.0 | 6.0 | approx. 30-90° |
| 49 28 25 | NN-WZV-23 | 120 | 320 | 7.27 | 9.39 | 3.5 | 6.0 | approx. 40-100° |

● NN-ZO



| Code No. | Specification Item | Average Drop Size (μm)(1.5MPa) | | Spray Volume (L/min)(1.5MPa) | | Spray Reach(m)(1.5MPa) | | Spray Angle |
|----------|--------------------|--------------------------------|--------------|------------------------------|--------------|------------------------|--------------|----------------|
| | | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | |
| 49 28 17 | NN-ZO-12 | 85 | 450 | 2.63 | 2.73 | 3.5 | 6.0 | approx. 2-50° |
| 49 28 18 | NN-ZO-14 | 85 | 410 | 3.53 | 3.64 | 3.5 | 7.0 | approx. 5-60° |
| 49 28 19 | NN-ZO-16 | 90 | 420 | 4.54 | 4.65 | 4.0 | 7.5 | approx. 7-70° |
| 49 28 20 | NN-ZO-20 | 100 | 320 | 6.66 | 7.07 | 4.5 | 8.5 | approx. 10-80° |
| 49 28 22 | NN-ZO-25 | 120 | 330 | 7.47 | 10.80 | 5.0 | 10.0 | approx. 12-90° |

● N-KZV-20



| Code No. | Specification Item | Average Drop Size (μm)(1.5MPa) | | Spray Volume (L/min)(1.5MPa) | | Spray Reach(m)(1.5MPa) | | Spray Angle |
|----------|--------------------|--------------------------------|--------------|------------------------------|--------------|------------------------|--------------|----------------|
| | | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | Wide Angle | Narrow Angle | |
| 49 22 30 | N-KZV-20 | 380 | 710 | 5.8 | 7.2 | 4.0 | 9.0 | approx. 15-70° |

※ For exclusive use on Zoom sprayers. All performances are when assembled. Doesn't work alone.

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|--------------------------------------------------------------------------|-----------|-----|
| 1 | 49 28 | Nozzle Disk for ZOOM Boom Sprayers (NN-ZV) | 10 | |
| 2 | 49 28 | Nozzle Disk for ZOOM Boom Sprayers (NN-WZV) | 10 | |
| 3 | 49 28 | Nozzle Disk for ZOOM Boom Sprayers (NN-ZO) | 10 | |
| 4 | 49 22 30 | Nozzle Disk for KIRINASHI (Ultra Low-Drift) ZOOM Boom Sprayer (N-KZV-20) | 10 | |

Nozzle Disk for Rice-Field Nozzles

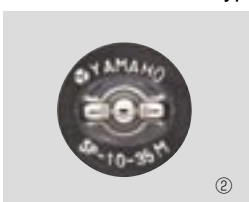
● Main Nozzle Tip (Ceramic)



| Code No. | TIP No. | Nozzle φ | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle |
|----------|-----------|----------|--------------------------------|------------------------------|------------------------------|-------------|
| 49 19 21 | HA-801-17 | φ 1.7 | 1140 | 5.76 | 7.07 | 0°(Direct) |
| 49 19 22 | HA-801-20 | φ 2.0 | 1130 | 8.08 | 9.90 | 0°(Direct) |
| 49 19 28 | HA-801-24 | φ 2.4 | 1070 | 11.92 | 14.62 | 0°(Direct) |
| 49 19 23 | HA-801-27 | φ 2.7 | 1080 | 14.74 | 18.18 | 0°(Direct) |
| 49 19 24 | HA-801-30 | φ 3.0 | 1270 | 18.48 | 22.62 | 0°(Direct) |
| 49 19 25 | HA-801-36 | φ 3.6 | 1180 | 26.96 | 33.02 | 0°(Direct) |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-----------------|-----------|-----|
| 1 | 49 19 | Main Nozzle Tip | 10 | |

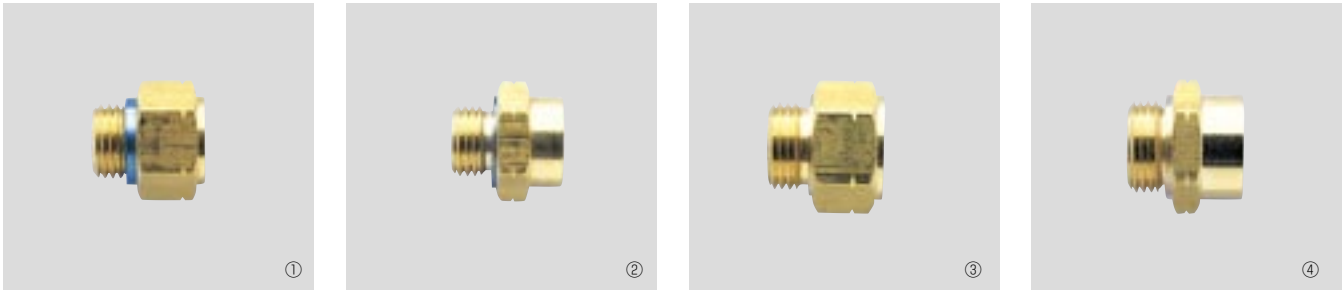
● SP Nozzle Disk Type S



| Code No. | TIP No. | Average Drop Size (μm)(1.5MPa) | Spray Volume (L/min)(1.0MPa) | Spray Volume (L/min)(1.5MPa) | Spray Angle | Note |
|----------|------------|--------------------------------|------------------------------|------------------------------|-------------|------|
| 49 30 36 | SP-10-35MS | 70 | 0.79 | 0.97 | approx. 35° | |
| 49 30 37 | SP-12-35MS | 65 | 0.95 | 1.16 | approx. 35° | |
| 49 30 38 | SP-28-30MS | 130 | 2.32 | 2.85 | approx. 30° | Z-12 |
| 49 30 39 | SP-33-35MS | 110 | 2.75 | 3.36 | approx. 35° | Z-14 |
| 49 30 40 | SP-51-25MS | 260 | 4.23 | 5.18 | approx. 25° | Z-16 |

| No. | Code No. | Item | Min. Unit | Use |
|-----|----------|-----------------------|-----------|-----|
| 1 | 49 30 | SP Nozzle Disk Type S | 10 | |

Reducer Joint



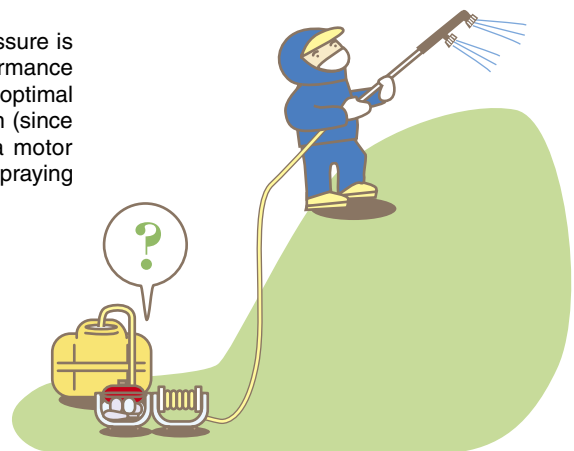
| No. | Code No. | Item No. | Item | Note |
|-----|----------|----------|-------------------------------------------------|------|
| 1 | 50 60 11 | J-2312K | J-2312 Joint: Male-SW13.8, Female-G1/4 | ※ |
| 2 | 50 60 12 | J-2321K | J-2321 Joint: Male-G1/4, Female-SW13.8 | ※ |
| | 75 33 63 | J-2002P | J-2002P Joint: Male-G1/4, Female-G3/8 | |
| 3 | 50 60 13 | J-2373K | J-2373 Joint: Male-SW16, Female-G3/8 | ※ |
| 4 | 50 60 14 | J-2372K | J-2372 Joint: Male-G3/8, Female-SW16 | ※ |
| | 75 33 55 | J-2331P | J-2331 Joint: Male G3/8, Female-G1/4 | |
| | 96 81 19 | J-2814P | J-2814 Joint: Male G3/8, Female-G1/2 | |
| | 75 33 64 | J-2581P | J-2581 Joint: Male G1/2, Female-G3/8 | |
| | 75 33 56 | J-2081P | J-2081 Joint: Male-G1/2, Female-G5/8 | |
| | 75 33 37 | BSM-2121 | BSM-2121 Joint: Male-W20(with slit), Female-W20 | |
| | 75 33 10 | H-2102P | H-2102 Nozzle Base Male-W20, Female-SW13.8 | |
| | 75 33 09 | H-2103P | H-2103 Nozzle Base Male-W20, Female-G1/4 | |
| | 50 60 15 | | Joint Set of ϕ 8.5: (ISO, SW) *1. | ※ |
| | 50 60 16 | | Joint Set of ϕ 10: (ISO, SW) *2. | ※ |

- Note 1. Comprises one J-2312(Photo①)and one J-2321(Photo②).
 2. Comprises one J-2373 (Photo③)and one J-2372 (Photo④).
 3. Items with ※ are packaged individually. Items without ※ are a set of male and female joints.

Ensuring Optimal Pressure

When undertaking a spray operation, one must ensure that the optimal pressure is achieved --- that is, the pressure at the nozzle tip where the nozzle's performance is maximized or optimized. Special attention is required in order to ensure optimal pressure in practical situations, such as employing a long hose for operation (since a loss of pressure occurs as liquid moves through the hose, and using a motor sprayer for spraying over a sloped field (since if either the motor tank or the spraying person is positioned higher than the other, fluctuation in pressure will occur).

- Resistance created within the hose will lead to loss of pressure. An easy way to calculate such pressure loss is by applying the following formula: $P=4.7 \times L \times Q^2 / D^5$ (where P represents pressure loss (Mpa), L represents hose length (meters), Q represents flow rate (liters per minute), and D represents inner diameter of hose (millimeters))
- Altitude differences between the motor tank and the person spraying creates changes in pressure. Specifically, a 10 meter difference in altitude will lead to a pressure change of 0.1 Mpa.



For example, when using KIRISTAR for orchards (2 nozzles) the flow rate will be 6 liters per minute and the optimal pressure 1.5 MPa. When a hose with an inner diameter of 8.5mm and a length of 100m is attached to this product, under an altitude difference of 50 meters, ...



, then the pressure loss will be as follows:
 -Pressure loss related to hose: 0.4 Mpa
 -Pressure loss related to altitude difference 0.5 Mpa
 thereby leading to a flow pressure at orifice becoming 1.5 MPa.

Based on such conditions, the pressure required at motor tank will be
 $0.4+0.5+1.5=2.4$ Mpa.