

Finally! Long-distance, large-area water discharge!!

Fire fighting nozzle that demonstrates the performance of both a straight nozzle and a spray nozzle, enabling far reaching, wide-angle water discharge

KS Fire
KS65-8

Karakuri Nozzle (Fire fighting nozzle)



(Gun type grip in the photo is optional.)

Main features

- 1) This new fire fighting nozzle is composed of eight straight nozzles. Turning the external cylinder changes the direction of these nozzles instantly, enabling stepless regulation of the shape of the water spray from straight to wide-angle (circle of 5 m in diameter formed at distance of 20 m when discharged at 16°) as is the case with the spray nozzle.
- 2) As water discharge ports are straight holes, water travels straight immediately after discharged, without spreading out. Travel distance is close to that of a straight nozzle, enabling water to reach a distant point.
- 3) With the benefit of an air intake function inside the nozzle, water spray can consist of both droplets and mist when it reaches the target at a discharge pressure of 0.5 MPa. Fire extinguishing effects close to that of a spray nozzle can be expected.

Mechanism is a world first.
Patented in Japan and patent-pending overseas



Wide-angle discharge

Wide-angle discharge
+Self-defense

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1. Development background and outline

This new variable fire fighting nozzle is an innovative nozzle with capable of **long-distance, wide-angle water discharge**.

This enables adjustment between a water spray with the travel distance and discharge strength of a straight nozzle and the discharge range of a spray nozzle.

In addition to this, air is injected into the water to be discharged to enhance the discharge strength. With the aid of this air, water forms both droplets and mist when it reaches the target (at a distance of 15 m or more), producing a highly effective extinguishing spray that also spreads out over a large area.

This new nozzle has been developed to enable fire fighting at a safe distance from the fire.

2. Features

- Rotating the external cylinder manipulates the outer discharge nozzle tips to regulate the discharge angle **steplessly** (from straight to wide angle or vice versa).

	Discharge distance	Landing width (discharge pressure: 0.5 MPa)
Straight:	Max. 35 m	1.5 m
Wide angle:	Max. 20 m	5.0 m (discharged at angle of 16°)

- The discharge angle can be changed as desired in the range of 0° to 16°, without being affected by the discharge pressure.
- The shape of the water spray is close to that of a straight nozzle where water is discharged directly from the nozzle tip hole. Therefore, water reaches farther than a spray nozzle where water forms a mist due to the flow path control.
- With the aid of the **air intake function**, air is mixed with water appropriately to form minute droplets to form a highly effective extinguishing spray.

3. Specifications

- New variable fire fighting nozzle KS65-8
- Discharge pattern: Straight / Wide angle (16°)
- Nozzle flow rate: 450 L/min ϕ 6.8 mm x 8 ports, equivalent to ϕ 19 mm straight nozzle
- Dimensions: Total length 150 mm, Max. outer diameter ϕ 90 mm
- Weight: Approx. 660 g
- Connection port: 65 nozzle tip screw (ϕ 55 mm, 10 threads/inch) (JIS B9913)

Performance comparison among different types of nozzles

	New variable fire fighting nozzle	Spray nozzle (generally used currently)	Straight nozzle
Fire fighting steps (initial extinguishing, extinguishing, remaining fire treatment)	Initial extinguishing, extinguishing, remaining fire treatment	Extinguishing, remaining fire treatment	Initial extinguishing, extinguishing
Discharge distance (m)	20 m to 35 m (varies depending on discharge form)	5 m to 20 m (varies depending on discharge form)	35 m
Droplet size (large, medium, small)	Large to medium	Small (constantly mist)	Large
Backlash during discharging (large, medium, small)	Small	Medium	Large
Adjustment of wide-angle discharge and straight discharge (good or poor)	Good: Adjustable	Good: Adjustable	Poor: Straight discharge only
Application (installation location)	Motor-driven pump vehicle, indoor fire hydrant, fire corps pump vehicle, etc.	Motor-driven pump vehicle, fire hydrant	Fire corps, indoor fire hydrant
Local extinguishing	Good: Possible using straight discharge form	Fair: Possible, but extinguishing effect is weak because of mist	Good: Possible
Wide range extinguishing	Good: Possible using wide-angle discharge form	Fair: Possible, but the travel distance is shorter due to mist	Poor: The nozzle must be shaken.
Comprehensive evaluation	Both straight discharge and wide-angle discharge possible for long distance due to original nozzle structure. Max. angle 16°	Person discharging water can protect themselves from fire and smoke by increasing the discharge angle. But discharge distance is shorter due to mist.	Obstacles (e.g. window) can be broken by straight discharge to remove. But the hose may shudder due to the backlash during water discharge.
Photos			