Pipeline Strainers — Y-Type vs Basket, Mesh Sizes and Pressure-Drop Discipline

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Choosing protective strainers for pumps, valves and instruments: where the Y-pattern earns its place against the basket type, translating mesh numbers to microns honestly, perforation versus mesh screens, blowdown and duplex options, and the commissioning habit (temporary start-up screens) that saves new plant.

Y or basket: an orientation and dirt-load question

| Y-type | Basket |

Dirt-holding | Modest pocket | Several times more — the shape exists for dirt volume |

Mounting | Horizontal or vertical-down lines; compact | Horizontal lines, upright; needs headroom to lift the basket |

Service | Blow-down plug or cap — quick, even in-service with a valve fitted | Open cover, lift basket — planned but thorough |

Typical post | Protecting a control valve, steam trap, meter or pump on cleaner media | Process intake duty, cooling-water branches, anywhere dirt arrives in loads |

Both stocked in the classic flanged cast-iron utility builds — Y-strainer DN50 PN16, basket DN50 and DN100 — with ~250 strainer line items around them, including integrated function-module strainers for refrigeration stations (Danfoss FIA 80 top, part of the SVA/ICF system).

Screens: mesh numbers mean openings, not microns — until converted

Mesh count is wires per inch; the opening depends on wire gauge, but the working conversions hold well enough to specify by:

Mesh | "H opening | Guards |

20 | ~840 µm | General pump suction protection |

40 | ~400 µm | Control valves, meters |

60 | ~250 µm | Spray nozzles, small orifices |

100 | ~150 µm | Instrumentation, fine seats |

Perforated screens (holes in sheet, 1–3 mm class) carry structural strength and coarse duty; mesh linings go inside them for fine duty. Finer is not safer: every step down doubles the cleaning schedule and the clean pressure drop. Specify the coarsest screen that protects the downstream component — its maker states the tolerable particle size.

Operating discipline

Pressure drop is the gauge of truth: fit gauge taps (or at least plan them); clean at the maker's 9E Æ–Ö—BÂ æ÷B öâ 6 ÆVæF . A collapsed screen from neglect protects nothing and sheds its own debris.

Start-up screens: new or reworked pipework sheds weld spatter and gasket scraps for weeks — fit temporary fine (often conical) screens at pump suctions for commissioning, inspect, then remove or coarsen; permanent fine screens at suctions starve pumps (NPSH guide).

Duplex changeover strainers exist where flow cannot stop for cleaning — two baskets, one valve handle; specify when the line's availability demands it.

Gaskets and bolting renew with every opening — sizes per the PN16 bolt reference and gasket guide.

Quoted within 24 hours by DN, PN, body material, screen specification and connection standard — or the downstream component you need protected, which is the better starting point.

Frequently asked questions
Which mesh size should protect a pump?Coarse — 20-mesh territory (~0.8 mm) unless the pump maker states finer; the pump passes what its clearances pass. Fine screens belong downstream at the sensitive component, not on the suction where their pressure drop eats NPSH.When is a basket strainer worth it over a Y-type?When dirt arrives in quantity or cleaning intervals matter: the basket holds several times the solids and lifts out whole. The Y wins on cost, compactness and quick blowdown for lightly loaded, cleaner lines.Can a Y-strainer be mounted vertically?Yes, with flow downward so the pocket still collects — never vertical-up, which empties the pocket back into the flow. The arrow on the body is the law either way.How often should strainers be cleaned?At the differential-pressure limit the maker states — which only works if 9E —2 observable. Without gauges, set a conservative calendar from the first inspections and shorten it whenever the screen comes out loaded.What is a start-up strainer?A temporary fine screen (often a witch's-hat cone with a tell-tale) fitted during commissioning to catch construction debris, inspected and removed once the system runs clean — standard practice on new pump installations.

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