Danfoss SVA Stop Valves and ICF Flexline Stations — Industrial Refrigeration Valve Logic

cBallast Technical Sourcing · Industrial refrigeration valves · issued 2026-10-18 · cballast.com/documents/danfoss-sva-icf-industrial-refrigeration-valves

How the SVA stop-valve system reads (S vs L neck, straightway vs angleway, weld ends, cap vs handwheel), why the function-module design lets a plant renew a valve without cutting pipe, and the ICF Flexline idea — one welded housing, up to six replaceable modules — that compressed whole ammonia valve trains into single stations.

SVA: the stop valve as a two-part system

SVA shut-off valves carry industrial refrigeration's defining design choice: the complete working internals live in a bolt-on top (function module), while the body is welded into the line once and stays there forever. The stocked rows show the grammar — an SVA-S 20 straightway, butt-weld, cap against an angleway socket-weld variant: S or L is the neck (L = long neck, keeping the stem clear of thick cold insulation), straightway or angleway the body pattern, then the end type (butt/socket weld) and whether a protective cap or handwheel tops it. Renewal is a module swap — SVA-S 15-20 module, SVA-L 15-20 module, SVA-S 25-40 module — sized in DN spans, fitted with the dedicated service tool set, no hot work, no pump-down of the whole plant section.

ICF Flexline: the valve train in one housing

Where a liquid-feed line once carried five welded-in valves in series (stop – filter – solenoid – regulator – stop), an ICF station is one housing with numbered module ports. The reference tells you the build: in the stocked ICF 25-6-90, 25 is the port size (25 mm, EN 10220 pipe), 6 the number of module openings, and the final group the factory-fitted module configuration — compare the ICF 20-6-90, ICF 20-6-110D1P1 and ICF 25-6-3RA. The wins are counted in weld joints (two instead of ten), leak paths, and service: every function renews from the top as a module. Around 700 ICF and 700 SVA line items are stocked — stations, modules, gaskets, tools.

Specifying for ammonia and CO2 plants

Weld ends rule: flanges are the exception in NH3 practice — fewer gasketed joints on a toxic refrigerant. State pipe standard (EN 10220 vs ANSI) with the DN.

Low temperature is a material spec: bodies are special cold-duty steel; never substitute a water-grade valve on a " 40 °C line. CO2 transcritical adds pressure class on top.

Caps vs handwheels is a policy choice: caps prevent casual operation and are the industrial default; handwheels go where operators work the valve routinely.

Strain the feed: ICF slots routinely carry a filter module — the standalone logic sits in the strainer guide; pressure protection around vessels pairs with the safety-valve basics and the refrigeration PRV reference.

Module part numbers (148B…, 027L…) off the existing valve top or station plate pin exact replacements — quoted within 24 hours from Danfoss stock, with the service tools on the same quotation. These are planned-shutdown items; 45-day project horizons and staged deliveries are normal handling.

Frequently asked questions
What is the difference between SVA-S and SVA-L?Neck length: L carries a long neck so the stem packing sits proud of thick low-temperature insulation; S is the standard neck. Internals follow the same module system in both.Can I replace an SVA valve's internals without welding?Yes — that is the design's point: the function module (complete top with cone, stem and bonnet) unbolts and renews while the welded body stays in the line. Isolate and relieve the section, swap the module with the service tool set.How do I read ICF 25-6-3RA?Port size 25 (mm, to the stated pipe standard), six module openings, and 3RA identifying the factory module fit-out. Replacement modules order per opening; the station plate's 027L number pins the exact build.Why do ammonia plants prefer welded valves over flanged?Every flange is a potential NH3 leak path with a gasket to age. Welded bodies with top-entry serviceable modules give tight lines and full serviceability at once — the SVA/ICF architecture exists for exactly this.Do these valves suit CO2 systems?The industrial programme spans NH3 and CO2, but CO2 transcritical pressures push ratings far above ammonia practice — match the pressure class and temperature rating per line, not just the DN.

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