



Insurance for Your Process Equipment and Instruments

02

Basket
strainer



A basket strainer is a closed vessel with a cleanable screen element, designed to remove and retain foreign particles down to 0.0254 mm from flowing liquid, gas or steam.

The basket type is characterised by a vertically oriented chamber, larger than that of a Y-pattern body. It presents a greater free straining area, so the pressure drop across it is lower – which is what makes it the preferred type for liquid service. Hydrotherms build the element with a free straining area of at least six times the cross-sectional area of the pipe.

The greater dirt-holding capacity also suits it to larger-diameter steam pipelines. Basket seats are precision machined to give a tight seal and prevent material bypassing the basket. Because the body is a pressure vessel rather than a fitting it is built to ASME Section VIII Division 1, and can be supplied U-stamped.



Cast basket strainer with differential pressure gauge, instrument manifold and drain valve fitted. Cast and fabricated construction are both covered by this catalogue.

CONSTRUCTION

CAST

A single-piece casting with integral flanges, to ANSI Class 600 lb. Compact and economical wherever a pattern exists for the size and the material.

FABRICATED

Built to drawing from plate and pipe for the sizes and ratings beyond the castings – to 78"+ and Class 2500 lb+. Welding to ASME Section IX, NDE to code.

STANDARD FEATURES

- Single-piece cast construction with integral flanges
- Fabricated heavy-duty construction
- Free straining area at least six times the pipe cross-section
- Large capacity baskets and low pressure loss
- End connections flanged, butt welded and socket welded
- Welding carried out to ASME Section IX
- NDE carried out to code requirements
- Standard stainless steel screens

Basket strainers are supplied in cast and fabricated construction. The castings cover the smaller sizes and the lower classes; above them the same duty is met by a fabricated vessel built to drawing, which is where the large diameters and the high ratings are found.

CAST BASKET STRAINERS

END CONNECTION	FROM	TO	MAXIMUM PRESSURE RATING
Flanged and butt weld	0.5" (15 mm)	36"+ (900 mm+)	ANSI Class 600 lb

FABRICATED BASKET STRAINERS

END CONNECTION	FROM	TO	MAXIMUM PRESSURE RATING
Flanged and butt weld	0.5" (15 mm)	78"+ (1980 mm+)	Class 2500 lb+ (172 BarG+)

END CONNECTION STANDARDS

END CONNECTION	GOVERNING STANDARDS
Flanged	ANSI B16.5 · ANSI B16.47 Series A (MSS SP 44) · Series B (API 605) · AWWA C207 Class D & E · BS 10 · BS 4504 · EN 1092 · DIN · NFE · JIS · ISO
Butt weld	ANSI B16.25 · Sch 40 to Sch 100 and special schedules
Socket weld	ANSI B16.11

Sizes and ratings shown are the standard offering. Consult Hydrotherms for other end connections, standards and combinations.

CHOOSING BETWEEN THE TWO

A casting is normally the economical route wherever a pattern exists for the size, rating and material – it is compact and the cost per unit falls with quantity. Beyond that point the same duty is met by a fabricated body built to drawing: large bore, high rating, exotic alloy, or a geometry no pattern covers.

Neither is the lesser option. Both are welded to ASME Section IX, examined to code, hydrostatically tested at 150% of design pressure and certified to EN 10204 Type 3.1. Send the line size, rating, material and service and Hydrotherms will state which route applies.

Body material is selected against the process fluid, temperature, pressure and corrosion duty. The specification that governs depends on the product form – a cast body, a forged component and a fabricated body are each written to a different standard for the same alloy.

MATERIAL	CAST	FORGED	PLATE / PIPE
Carbon steel	A216 WCB	A105	A516 Gr 70 / A106 Gr B
Low-temperature CS	A352 LCB / LCC	A350 LF2	A516 Gr 70 (impact tested)
Stainless steel 304 / 304L	A351 CF8 / CF3	A182 F304 / F304L	A240 304 / 304L
Stainless steel 316 / 316L	A351 CF8M / CF3M	A182 F316 / F316L	A240 316 / 316L
Stainless steel 904L	—	A182 F904L	A240 904L
Duplex 2205	A890 Gr 4A	A182 F51	A240 S31803 / S32205
Super duplex 2507	A890 Gr 5A / 6A	A182 F53 / F55	A240 S32750 / S32760
Alloy 20	A351 CN7M	B462 N08020	B463 N08020
Monel 400	A494 M35-1	B564 N04400	B127 N04400
Inconel 625	A494 CW6MC	B564 N06625	B443 N06625
Hastelloy C276	A494 CW12MW	B564 N10276	B575 N10276
Cast iron	A126	—	—
Bronze	B62	—	—

Specifications shown are those governing each product form. Alloy steels, engineered PVC and other grades are supplied to customer specification. Screen and internal materials are selected independently of the body.

SCREENS AND INTERNALS

Baskets are stainless steel as standard. 316, Monel, brass and other alloys are available, as are mesh-lined, pleated and wedge wire elements.

SOUR SERVICE

Where hydrogen sulphide is present, NACE MR0175 / ISO 15156 compliance is mandatory. Material selection, hardness limits, heat treatment and alloy composition are controlled across all wetted parts, and the strainer is certified to EN 10204 Type 3.1 or Type 3.2.

The strainer is configured to the line, not the other way round. Everything below is supplied to order.

COVER AND CLOSURE

- Bolted cover, standard
- Quick-opening swing-bolt closure
- Hinged cover
- Davit arm cover-lift assembly, for basket removal
- Cover lifting handle

BASKET AND ELEMENT

- Perforated stainless steel, 1/32" to 1/2"
- Mesh 20, 40, 60, 80, 100, 150, 200, 325 and 400
- Mesh-lined baskets, 10 x 10 to 500 x 500
- Multiple baskets, for a larger straining area
- Pleated baskets, for a higher open area ratio
- Wedge wire elements
- Basket materials — 316, Monel, brass and others
- Basket hold-down on the larger sizes

CLEANING AND DRAINAGE

- Backflush, backwash and blowdown
- Drain valve, or drain plug on the side of the body
- Vent connection, standard on 6" and larger

DIFFERENTIAL PRESSURE

- Pressure gauge taps, for indication of a dirty basket
- Differential pressure gauges and switches
- Air eliminator or air vent valve

BODY AND CONNECTIONS

- Rotated or offset nozzle placement
- High-pressure construction
- Steam jacket, for highly viscous fluids

COATINGS AND PROTECTION

- Special internal and external coatings
- Zinc anodes, for saltwater service

SUPPORT AND CODE STAMPING

- Support legs and skid mounting
- ASME Section VIII Division 1 "U" stamp

A strainer is a pressure-containing part. What matters is not that it was made carefully but that it can be shown to have been — every claim below is evidenced on the documentation package that ships with the strainer.

CARRIED OUT ON EVERY STRAINER

Hydrostatic test	Every strainer is hydrostatically tested to 1.5 times the maximum allowable working pressure before despatch, in accordance with ASME Section VIII. Shell integrity, joint tightness and cover seal performance are verified under sustained test pressure, and the certificate ships with the order.
Welding qualification	All welding procedures — WPS and PQR — and all welders are qualified to ASME Boiler and Pressure Vessel Code Section IX.
Non-destructive examination	NDE to code requirements, executed in house by ASNT Level II and Level III personnel. Radiography by X-ray and Iridium-192.
Material verification	100% verification against Mill Test Certificates, with individual heat-number tracking. Records retained on file for five years.
Quality plan	A QC plan written around strainer failure modes — the screen, the cover joint and the body weld — rather than a generic works procedure.

CONDUCTED WHEN REQUESTED

- Air / pneumatic testing
- Pressure drop testing
- Helium leak test
- Hydrostatic burst test
- Shock test
- Vibration test
- Surge test
- Ferroxyl test
- Radiographic examination
- Magnetic particle examination
- Dye penetrant examination
- Ultrasonic testing
- Strain-gauge testing
- Brittle (coating) lacquer testing
- Cryogenic testing
- Tensile tests
- Hardness tests
- Impact test
- Manipulating tests
- Sulfide stress cracking test (SSC)
- Hydrogen induced cracking test (HIC)

Material certification to EN 10204 Type 3.1 is supplied as standard on every Hydrotherms strainer. Nothing below is charged as an extra unless it is marked as available on request.

MATERIAL CERTIFICATION

EN 10204 Type 3.1 Supplied as standard on all Hydrotherms strainers. Certified by the manufacturer against the order, with test results from the material used.

EN 10204 Type 3.2 Available on request. Verified and countersigned by an independent third-party inspector as well as the manufacturer.

CODES AND STANDARDS APPLIED

STANDARD	APPLIED TO
ASME Section VIII Div 1	Pressure vessel design, and "U" stamp where required
ANSI B16.34	Pressure testing
ASME Section III	Pressure testing
ASME Section IX	Welding and welder qualification
ASME B16.5 / B16.47	Flanged end connections
EN 10204	Material certification
NACE MR0175 / ISO 15156	Sour service
ASNT	NDE personnel qualification

THIRD-PARTY INSPECTION

Extensive experience delivering equipment released by Lloyd's Register, Bureau Veritas, TÜV and Engineers India Limited. Nominate your inspection authority with the enquiry.

Visit **www.hydrotherms.in** to download the complete quality control manual.

Protection through reliable performance

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