

Changes shown by

SCOPE

- I 1.1 This practice covers the design and application of temporary and permanent strainers for the protection of mechanical equipment.
- I 1.2 This practice **does not cover metal screen or porous media filters with openings finer than 150 μ m.**
- I 1.3 **An asterisk (*)** indicates that additional information is required. If a job is contracted, this additional information is furnished in the Job Specification.

SUMMARY OF ADDITIONAL REQUIREMENTS

- I 2.1 The **design and application** of strainers for mechanical equipment **not specifically covered by other practices** shall be per the requirements given herein.
- M 2.2 **Strainers** shall be **located** between the inlet flange and the equipment isolation block valve.

DESIGN

COMMON REQUIREMENTS FOR TEMPORARY AND PERMANENT STRAINERS

- M 3.1 **Selection of strainer type and orientation of the strainer element relative to process flow** shall ensure that collected solids or foreign material can not fall back into the line.
- R 3.2 **Strainers** shall be **designed and fabricated to prevent their damage** due to vibration, differential pressure, pulsating flow, or impact of objects. **Screen of mesh size 20 or finer shall be reinforced** with perforated plate, or heavier screen and steel bars.
- S 3.3 **Strainer bodies** shall be suitable for the **line service classification**.
- R,M 3.4 **Material for screen and perforated plate** shall be per **Par. 4.1**.
- R 3.5 **Mesh size of strainers** shall be selected to stop all objects that could cause plugging or mechanical damage. See **Par. 4.1** for usual maximums for normal operation.
- O 3.6 **Strainer open area** shall be not less than two times the inlet pipe cross-sectional area.
- M 3.7 **Cone or basket type strainers** shall be provided with **identification tabs** that protrude from the holding pipe flanges.
- R 3.8 **"TEE" type strainers.** Guide rods and shelf rods supporting the strainer element shall be sized as follows:

"TEE" SIZE, NPS		ROD SIZE	
in.	mm	in.	mm
≥ 6	≥ 150	3/8	10
< 6	< 150	1/4	6

ADDITIONAL REQUIREMENTS FOR TEMPORARY STRAINERS

- I * 3.9 **Temporary strainers shall be used** during line flushing, and initial operating periods of new and revamped plants, **unless:**
- Permanent strainers are specified.
 - Piping is accessible for internal visual inspection throughout its entire length, and is clean and free of foreign objects.
- M 3.10 **Piping layout** shall permit insertion and removal of the temporary strainer **without disturbing equipment alignment**. Pipe fittings such as Tee's, "Y"s, or fabricated piping spool pieces are acceptable for this purpose.

PERMANENT STRAINERS

- M 3.11 **The design and location** of permanent strainers shall permit cleaning without removing the strainer body.
- R 3.12 **Twin strainers or self-cleaning strainers**, as appropriate, shall be **used in unsparred equipment services**.
- M 3.13 **Self-cleaning strainers (i.e., "Y" or "TEE" types)** shall be provided with **valved blowdown connections**.



APPLICATION

I 4.1 Strainer requirements for specific equipment and service applications shall be per the following:

EQUIPMENT	SERVICE	PIPE or FLANGE SIZE (as applicable) NPS, in.	STRAINER TYPE (TEMPorary) (PERManent)	MESH ⁽¹⁾ SIZE or OPENING in.	MATERIAL for STRAINER ELEMENT
PUMPS Centrifugal: Horizontal Single Stage, Vertical Inline	Suction	3 and under	TEMP	5 x 5	Note (2)
		3 to 6		3 x 3	
		Over 6		1/2	
Horizontal Multistage, Vertical Deepwell	Suction	6 and under	TEMP	20 x 20	
		Over 6		1/8	
Reciprocating	Suction	All sizes	TEMP	5 x 5	
Controlled Volume	Suction	All sizes	PERM	Note (3)	Type 304 stainless steel
Rotary, Turbine	Suction	All sizes	TEMP	20 x 20 ⁽⁴⁾	Note (2)
External Flush Oil Systems for Mechanical Seals	Main Header	All sizes	PERM	20 x 20	Type 304 stainless steel
COMPRESSORS Centrifugal:	Air, Suction	All sizes	PERM	3 x 3	Type 304 stainless steel
	Gas, Suction ⁽⁵⁾		TEMP	5 x 5 ⁽⁷⁾	Type 304 stainless steel
	Buffer, Seal		PERM	100 x 100	Type 304 stainless steel
	Flushing		PERM	80 x 80	Monel
Reciprocating:	Air, Suction	All sizes	(PERM Filter)	—	—
	Gas, Suction		TEMP	20 x 20	Type 304 stainless steel
Rotary Screw:	Air, Suction	All sizes	PERM	20 x 20	Type 304 stainless steel
	Gas, Suction		TEMP	20 x 20	Type 304 stainless steel
	Buffer, Seal		PERM	100 x 100	Type 304 stainless steel
Axial:	Air, Suction	All sizes	PERM Screen on Dry Filter	5 x 5	Type 304 stainless steel
	Gas, Suction		TEMP	5 x 5 ⁽⁷⁾	
	Buffer, Seal		PERM	100 x 100	
	Washing		PERM	80 x 80	
TURBINES Gas:	Inlet Air	All sizes	PERM Screen on Dry Filter	5 x 5	Type 304 stainless steel
	Washing		PERM	80 x 80	
Steam: Note⁽⁶⁾	Inlet	All sizes	PERM	1/8	Monel