

How to Identify Existing Wright-Austin Centrifugal Separators

By: Chris Pasquali, CEO Factory Direct Pipeline Products, Inc.

Customers frequently ask for performance and maintenance information for their existing Wright-Austin separator. Sometimes this coincides with routine pipeline inspection and other times is related to application changes or perhaps a new application and they are considering “duplicating” an existing system. This article will explain how to identify most existing Wright-Austin gas/liquid separators; if the design criteria has changed (your application flow rate, gas composition, pressure, temperature and liquid load), then it will be necessary to re-evaluate the most applicable separator design. Since this is sometimes related to troubleshooting performance, we’ll touch on that subject also.



History of Wright-Austin

Wright-Austin was established in 1894 in Detroit Michigan, pioneering cyclone separator and steam trap designs. 102 years later (1996) they were acquired by Hayward Filtration. At that time Hayward had both alloy and non-alloy pipeline strainer products and the centrifugal separators were considered an expansion of their industrial filtration products.

Manufacturing was transferred to Hayward in New Jersey and key personnel were tasked with training of Hayward employees. In particular, one gentleman (who worked as an engineer for Wright-Austin for 22 years prior to becoming the plant manager and vice president during the last 6 years before the acquisition by Hayward) made weekly trips to New Jersey for 6-8 months to ensure a smooth transition.

Nine years after acquiring Wright-Austin, Hayward divested of the alloy filtration products (including the gas/liquid separator products) and sold them to Eaton Hydraulics, Filtration Division.

Records Nightmare

Separators manufactured under Eaton are easily looked-up by serial number and the design criteria is usually associated with its drawing. Separators manufactured under Hayward are not as easily looked-up; for whatever reason those database files were lost or not transferred to Eaton. The Wright-Austin separators fabricated in Michigan are mostly documented on microfiche with the physical documents stored off-site, so obtaining the information on those vintage units is often possible but might require one or more weeks to obtain.

Field Identification

Sometimes the nameplate is missing or covered-up in insulation so we cannot be sure when it was fabricated or by whom, in such a case here’s how we suggest identifying your separator:

1. Method and Material of Construction

If the separator is installed on a 5” or smaller pipeline and is made from a casting, it is very likely a standard cast iron type T separator as illustrated in a [drawing link from the cast T webpage](#). These are commonly used in both steam and compressed air systems and since they are castings, they are not modifiable, so the drawings above provide key dimensions you can double-check against yours to figure-out which size you have – and from there its performance. If not a casting, verify material and design.

IDENTIFICATION GUIDE

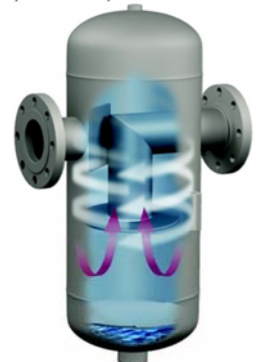
Cast Type T

- Nozzles located near top of body
- Cast cone within
- Vortex containment plate near bottom
- Body flange enables inspection



Fabricated Type T

- Dished head above nozzles
- Fabricated “L” shaped internal vortex nozzle
- Vortex containment plate near bottom
- Fully welded body in most cases



Cast Type 31LST

- Flanged body and sump with integral trap



Fabricated Type 31L/L1

- Welded design without body flange
- Some designs have a sump style drain

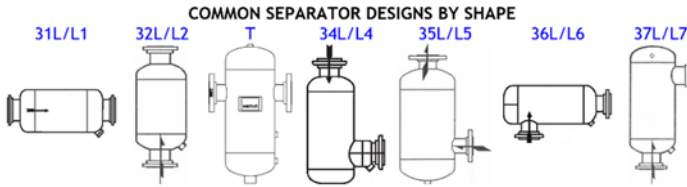


2. Design or “Type”

There are two basic configurations of centrifugal separators, a [horizontal barrel style](#) and a [T style](#). The barrel style may be installed in a section of pipeline that is either horizontal, vertical or combination of each whereas the T style must be installed within a horizontal section of piping. Once the shape is matched to the various types of separators offered, we can provide the applicable drawing of the standard design for that type of separator to determine the approximate size.

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Fabricated separators are often customized; the most common customizations include reduced nozzle size, additional nozzles, inspection ports, liquid level gauge connections and corrosion allowance. When the dimensions of the standard product do not directly correspond to your separator, note which dimensions differ. It is usually the inlet-to-outlet and body diameter dimensions and this is often related to reduced (non-standard) nozzles.



3. ASME code stamped separators are registered with the National Board of Boiler and Pressure Vessel Inspectors (NBBI) and the registration papers provide some basic information about the separator:

- Manufacturer
- Type
- Serial #
- Drawing #
- Year built
- Length & Diameter
- Material
- Wall thickness of body & heads
- Max/Min temperature and pressure
- NDT (most commonly hydrostatic test results)
- Description of all ports/nozzles

You can contact the [National Board](#) to purchase a copy of the report on file; you need to submit the original manufacturers name and the national board number. If you do not have the documentation referencing the national board number, you can try submitting the manufacturers serial number and year built (on nameplate).

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternate Form for Single Chamber, Completely Shop-Fabricated Vessels only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1 Manufactured and certified by WRIGHT-AUSTIN COMPANY 3250 Franklin Street, Detroit, Michigan 48207
(Name and address of manufacturer)

2 Manufactured for INGERSOLL-RAND INC., ROTARY AIR COMP DIV., PO BOX 1600, DAVIDSON, NC, 28036
(Name and address of purchaser)

3 Location of installation UNKNOWN (Name and address)

4 Type: Horizontal 15423 B (MFR's serial no.) A-21684 (Drawing no.) 10453 (Natl. Bd. No.) 1994 (Year built)

5 The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction and workmanship conform to ASME Rules, Section VIII, Division 1, 1992 Year

to 12-31-93 Code Case Nos. Special Service per UG-120(d)

6 Shell: SA-53-B/106-B 280" Nom. Thk. (in.) 6 1/16" Cor. Allow. (in.) 9 5/8" Length (overall) (ft. & in.)

7 Seams: Seamless None 85% None U/W 12(1) None Conc. R.T. (Spot or Full) ER. (%) H.T. Temp. (F) Time (hr) Grth. (Welded Jct. Singl. Lap. Butt) R.T. (Spot, Partial, or Full) No. of Courses

8 Heads: (a) Matl. SA-516Gr.70 (b) Matl. SA-234-WPB (Spec. No. Grade) (Spec. No. Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Ends	3/28"	---	---	---	2:1	---	---	---	Concave
(b) Sump	1/77"	---	---	---	2:1	---	---	---	Concave

If the nameplate is missing and there's no documentation referencing the national board or manufacturers information, then you need to rely on #1 and #2 above.

Purpose of Identification and Troubleshooting

If you are just trying to evaluate performance or determine if your unit requires maintenance, identification by dimensions should be sufficient. All non-coalescing centrifugal separator designs remove entrained droplets and particles larger than 10 microns with 99% efficiency. There are no internal components to service or replace, it is a fully welded (or cast) vessel considered both self-cleaning and maintenance free. If your process conditions have not changed and the performance of your separator has not changed (increased liquid downstream of the separator) then it is likely fine. If the separator has been sitting idle with residual liquid inside, a visual inspection through the nozzles and perhaps ultrasonic inspection of wall thickness should be performed to determine if corrosion is severe.

If your performance has changed, usually attributed to increased liquid downstream of the separator, then first double-check the design criteria for your application – has it changed? An increase in flow rate or liquid into the system may overwhelm your existing separator. Also, check your float drain trap or valve system for draining the liquid; if it is not functioning properly liquid might become re-entrained within the separator.

Please call us at 908.362.9981 or email support@wright-austin.com for immediate assistance with your specific application. We will assist you with identification of your existing separator and verify it is appropriate for your current design criteria.