



**WELDED ALUMINUM DUCT AND FITTINGS**

## LIGHTWEIGHT CUSTOM DUCTWORK

TIG welded aluminum duct and fittings for lightweight custom HVAC, exhaust, process, and equipment connection work.

- Best for custom duct packages where reduced weight, aluminum material, or specialty equipment geometry is required.
- 5052 is typical for welded aluminum duct; 3003 can be quoted for formed components or project-specific requirements.
- Confirm alloy, gauge, finish expectations, connection style, and field-fit dimensions before release.

MATERIAL	<b>5052 or 3003 Aluminum</b>
WELDING	<b>TIG welded</b>
FINISH	<b>Mill finish</b>

### CONSTRUCTION STANDARD

<b>Application</b>	Custom welded aluminum ductwork and fittings for lightweight exhaust, process, rooftop equipment, equipment connection, or specialty fabricated duct systems.
<b>Material grade</b>	5052 aluminum is typical for welded duct fabrication; 3003 aluminum is available when project specifications or forming requirements call for it.
<b>Gauge range</b>	Welded aluminum duct is supplied as quoted based on size, application, pressure, alloy, reinforcement, and project requirements.
<b>Welding process</b>	Aluminum duct is TIG welded unless another weld process, joint detail, or finish requirement is specifically quoted.
<b>Straight sections</b>	Produced in 5'-0" nominal lengths, less end flange allowance. Shorter sections and coordinated field-fit pieces can be fabricated when required.
<b>End preparation</b>	1/2" flanges are standard. Angle rings, custom flange types, special bolt patterns, collars, and companion flange details can be fabricated as shown or quoted.
<b>Finish handling</b>	Mill finish aluminum is standard unless another finish or handling requirement is quoted. Confirm visible faces, protective film needs, and scratch-sensitive surfaces before release.
<b>Quality check</b>	Weld seams receive visual inspection before release. Leak testing, pressure testing, NDT, or certified inspection are by others unless quoted.

### BUILD QUALITY



**Made to spec**

Built to released alloy, gauge, finish, and connection details.



**Built tough**

Lightweight TIG welded aluminum with coordinated reinforcement.



**Quality checked**

Welds and fabricated openings receive visual inspection.



**Weight conscious**

Good for equipment packages where reduced duct weight matters.

## FABRICATION CAPABILITIES

<b>Duct sections</b>	Rectangular and round aluminum straight duct, field-fit pieces, risers, drops, and custom lengths.
<b>Fittings</b>	Aluminum elbows, radius bends, offsets, tapers, reducers, transitions, branches, and tees.
<b>Connections</b>	1/2" flanged duct systems are typical for fully welded connections. Equipment transitions, collars, curb adapters, wall/shaft connections, and roof penetration fittings are available.
<b>Field-fit work</b>	Short sections, piece-marked runs, and coordinated connection faces.
<b>Shop details</b>	Tabs, brackets, companion flanges, reinforcement, and special flange details when requested.
<b>Release support</b>	Built from released dimensions with alloy, gauge, finish handling, piece marks, and connection faces confirmed before fabrication.

## MATERIAL NOTES

### 5052 or 3003

5052 is commonly used for welded aluminum duct; 3003 is available for formed components or project-specific requirements.

### Lightweight duct

Aluminum reduces duct weight compared with steel, making it a good fit for custom equipment connections, rooftop packages, and specialty exhaust systems.

### TIG welded seams

Aluminum duct is TIG welded for clean, controlled welds at seams, transitions, and connection details.

### Material fit

Confirm aluminum is acceptable for the service environment; use stainless when corrosion exposure or cleaning requirements call for stainless material.

## CONNECTION OPTIONS



COUPLINGS

### Raw ends

Raw ends with couplers for screw assembly.



1/2" FLANGE

### Field welded

1/2" flanges for field welded assembly.



TDC / DUCTMATE

### Bolted seal

Bolted connections with butyl sealant.



RINGS / FLANGES

### Custom pattern

Vanstoned or welded angle rings, frames, and bolt flanges.

## OPTIONAL ACCESSORIES

### Access

Aluminum doors, cleanout openings, inspection panels, and drain fittings.

### Finish

Mill finish handling, visible faces, protective film, and scratch-sensitive surface requirements.

### Connections

Flexible connectors, companion flanges, tabs, brackets, angle rings, and piece marks.

### Custom details

Custom bolt patterns, aluminum reinforcement, special hardware, liner/insulation, or finish requirements.

## REQUIRED FOR QUOTE / RELEASE

5052 or 3003 alloy, gauge, duct size, quantity, and required nominal or field-fit lengths.

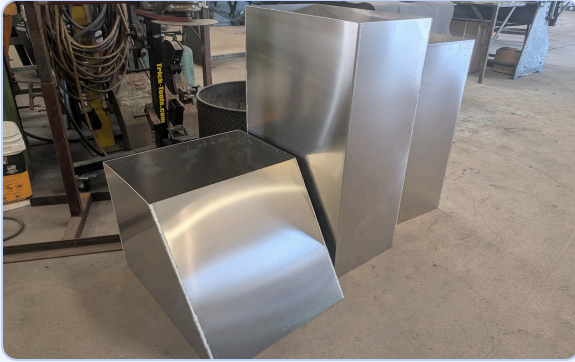
Approved drawing, sketch, or verified field dimensions with airflow/orientation noted.

Flange type, bolt pattern, companion flange needs, and connection face details.

Mill finish, visible faces, protective film needs, scratch-sensitive areas, and handling requirements.

Piece marks, access openings, reinforcement, pressure class, liner/insulation needs, and any testing requirements.

## APPLICATIONS & DETAILS



### APPLICATION DETAIL

#### Lightweight welded duct



Aluminum welded duct is useful when light weight, corrosion resistance, or non-ferrous construction matters. It can serve rooftop, equipment, process, and specialty airflow applications where standard galvanized construction is not the preferred material.

### APPLICATION DETAIL

#### TIG welded aluminum



5052 or 3003 aluminum can be quoted; seams and fittings are TIG welded unless another process is listed. Gauge, alloy, weld appearance, reinforcement, connection faces, and any finish requirements should be coordinated before release.



### APPLICATION DETAIL

#### Custom transitions



Round, rectangular, offset, and equipment transition details can be built from released dimensions and openings. Orientation, adjoining sizes, flange patterns, access needs, and field-fit dimensions can be incorporated into the approved fabrication package.

## NOT INCLUDED UNLESS QUOTED

- Installation, field welding, hoisting, rigging, roofing, or roof penetration work.
- Engineering, permits, inspections, balancing, cleaning, anodizing, painting, fire wrap, fire-rated enclosure, or listed-system certification.
- Leak testing, pressure testing, gaskets, sealant, special hardware, companion flanges, or rework from changed release dimensions unless quoted.

## SCOPE & RESPONSIBILITY

**Code note:** Aluminum duct systems may be governed by mechanical code, local code, project specifications, material compatibility requirements, and AHJ requirements. Empire fabricates duct and fittings to released dimensions and quoted scope; final system design, material selection, installation method, field welding, sealant/gasket requirements, clearances, and acceptance remain the responsibility of others unless expressly included.

## READY TO QUOTE?



### Let's get your project moving.

Send drawings, sketches, photos, or field measurements. Empire is ready to go to work for you.

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