

AEROSPACE



WE WORK HERE.



We are not bound by gravity. We defy it. And we do that by forging a wide range of custom parts for commercial aircraft, military jets and helicopters, guided missiles, and anything else that flies, using aerospace-grade materials, such as precipitation-hardening, maraging, and select nickel-based super alloy grades. When traveling hundreds of miles an hour, at an altitude of 36,000 feet, our customers

want the dependable performance of Clifford-Jacobs custom forgings. Whether it's a wing flap actuator or a transmission gear, they know it's designed and built with the same obsessive attention to detail. The end result is a high-quality, custom-forged part and a partnership of great value. To us and to you. Call for a quote the next time you need a dependable, high-quality, custom-forged component.

Call us today at 217.352.5172 for your next custom forging order.

CLIFFORD-JACOBS
FORGING
AN IMT COMPANY™

TOLERANCES AND MATERIALS

Thickness and Straightness Tolerances

| | | | | | |
|--------------------------|---------------|---------------|---------------|---------------|-------------------------|
| Maximum Outside Diameter | 3.50" | 6.13" | 7.88" | 11.25" | 25.13" up to 30" |
| Thickness | +0.03"/-0.03" | +0.06"/-0.03" | +0.06"/-0.03" | +0.09"/-0.03" | +0.13"/-0.03" |
| Straightness | 0.03" | 0.04" | 0.05" | 0.06" to 20" | 0.06" to 30" |

External and Internal Tolerances

| | | | | | |
|--------------------------|--------------|--------------|---------------|---------------|-------------------------|
| Maximum Outside Diameter | 3.91" | 7.81" | 11.72" | 15.63" | 15.63" up to 30" |
| +EX, -INT | 0.03" | 0.06" | 0.09" | 0.13" | 0.16" |
| Maximum Outside Diameter | 11.63" | 14.97" | 18.28" | 18.28" and up | 18.28" and up |
| -EX, +INT | 0.03" | 0.04" | 0.05" | 0.06" | 0.06" |

Weight and Mismatch Tolerances

| | | | | | |
|---------------|-----------------|-----------------|------------------|------------------|------------------|
| 3 to 5 pounds | Up to 25 pounds | Up to 50 pounds | Up to 100 pounds | Up to 300 pounds | Up to 800 pounds |
| 0.03" | 0.04" | 0.05" | 0.06" | 0.06" up to 20" | 0.09" up to 30" |

■ Specifications listed are only guidelines. To learn what Clifford-Jacobs can do for you, please ask.

CARBON, ALLOY, AND TOOL STEEL

1018, 1020, 1021, 1022, 1026, 1029, 1030, 1040, 1045, 1050, 1141, 1146, 3310, 4130, 4140, 4142, 4145, 4150, 4320, 4340, 4620, 4820, 8620, 8622, 8630, 8822, 9310, A182F11, A182F22, A182F91, A336F1, A336F22A, A350LF2, A350LF3, MIL-S 23284C1, MIL-S 23284CL2, H-13, INCONEL® 625, SA182

BEARING QUALITY

4130, 4140, 4320, 4340, 4820, 8620, 8822, 8825, 52100

AIRCRAFT QUALITY

4130 (AMS 6348), 4140 (AMS 6382), 4320 (AMS 2301), 4330V (AMS 6427), 4340 (AMS 2301), 4340 (AMS 6415), 4340 (AMS-S 5000), 4820 (AMS 2301), 9310 (AMS 6260), 9315 (AMS 6263), 17-22-AS (AMS 6302)

CALCIUM TREATED

4130, 4140, 4150, 4340, 8620

VAR MATERIAL

4320 (AMS 2300), 4330 (AMS 6411), 4340 (AMS 6414), 9310 (AMS 6265), PYROWEAR® 53 (AMS 6308), NITRALLOY N (AMS 6475), 9-4-30 (AMS 6526), PYROWEAR® 675

VIM VAR IUT

H12 MOD. (BMS 7-223), 9310 (BMS 7-249), 4340 (BMS 7-250), LESCO® 53, PYROWEAR® 53 (HMS 6-1288)

STAINLESS STEEL

304, 304L, 316, 316L, 405, 410, 17-4PH, 15-5PH

CUSTOM GRADES

Caterpillar, General Electric, Westinghouse, Boeing Aerospace

■ The above grades can be ordered to meet acceptable AMS, ASTM, or military specifications as needed. Clifford-Jacobs forges most commercially available variations of these grades.

Clifford-Jacobs takes pride in the speed and accuracy with which we reply to requests for quotes. In addition, we offer short to medium runs, from 25 to 15,000 pieces annually, and we have a seasoned, expert staff with a CNC-equipped die shop on-site. To expedite answers to your questions, please have the following information at hand:

- Material grade
- EAU and delivery quantity
- Date requested
- A good-quality, fully dimensional print

If required, please include any specifications you may have for machining, heat treating, and testing.

Clifford-Jacobs can produce custom or standard forgings within the following parameters:

- From 3 pounds to 800 pounds
- Up to 30 inches in diameter
- Up to 50 inches in length
- Up to 18 inches in spindle height
- Annual quantity of 25 to 15,000 pieces

CLIFFORD-JACOBS FORGING

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