SHOULD YOU REPAIR OR REPLACE YOUR BELOW-THE-HOOK LIFTING DEVICE?

When a Below-the-Hook lifting device fails inspection, the repair-or-replace decision isn't always obvious. Mazzella's repair and manufacturing expertise helps you choose the safest, most cost-effective path forward.

REPAIR VS. REPLACE

- Damage is **minor wear** rather than structural failure such as:
  - Wear in pin holes
  - Bail wear
  - Hinge wear
  - Broken hooks or mechanical parts
  - Surface finish / paint required
  - Minor structural repairs can be done safely
- Device has **not been overloaded or visibly deformed** beyond design capacity
- Cost of inspection + repair labor is **significantly less than replacement**
- Engineers can evaluate and ensure the device will be safe after repair

- Device has **no documentation or tag** and cannot be traced to a reputable manufacturer
- Device has exceeded its **rated load capacity**
- Device shows **catastrophic overload** such as:
  - Bent, crushed, torn, or severely deformed
  - Structural members compromised
- Device would cost **more or equal to 75% of a new unit** to repair after labor, machining, shipping, etc.
- Device is **older with unknown cycles** or pre-2008 lacking ASME service class / design category data
- Metal fatigue or life cycle estimates indicate the device is **near end-of-life** **(see life cycle tables on back)**
- Device has **extensive damage** that cannot be economically repaired without replacing major components

TAG MARKINGS »

Proper marking of below-the-hook lifting devices is essential for safe operation and compliance. ASME B30.20 and ASME BTH-1 require identification details that provide traceability and confirm correct application.

MANUFACTURER / CONTACT

Identifies who built the device and provides traceability for support or compliance.

RATED LOAD

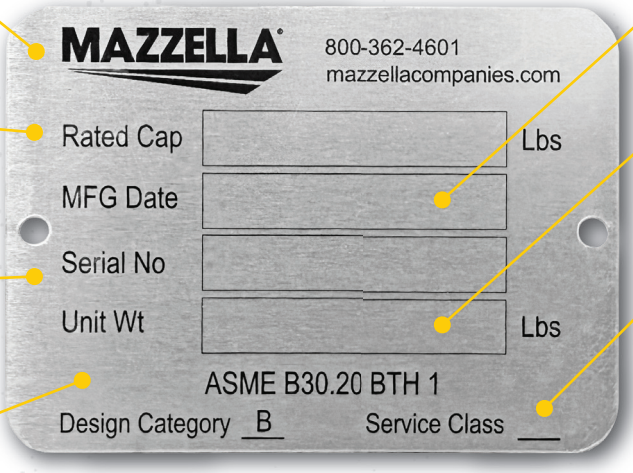
States the maximum allowable lifting capacity under specified conditions.

SERIAL NUMBER

A unique number used to track the specific lifter for inspection, maintenance, and records.

DESIGN CATEGORY

Defines the structural design factor based on risk level and application.



DATE

Original manufacture date or date of repair / alteration.

LIFTER WEIGHT

Indicates the device's self-weight for load calculations and safe crane operation.

SERVICE CLASS

Indicates the expected frequency and severity of use the device is designed to withstand.

NOTE:
Tag **must reflect any and all updated specifications** after repair or replacing.

ASME BTH-1 DESIGN CATEGORIES »

ASME BTH-1 specifies that there are two different categories designated for BTH lifting devices—either Design Category A or Design Category B.

DESIGN CATEGORY A

As defined by ASME BTH-1, “Design Category A should be designated when the magnitude and variation of loads applied to the lifter are predictable, and where the loading and environmental conditions are accurately defined or not severe.” Design Category A lifting devices have a nominal design factor of 2:1 and are limited to Service Class 0. Typical applications for these lifters include lifts at slow speeds, a well maintained lifting device, an experienced crane operator, and the control of a lift supervisor.

DESIGN CATEGORY B

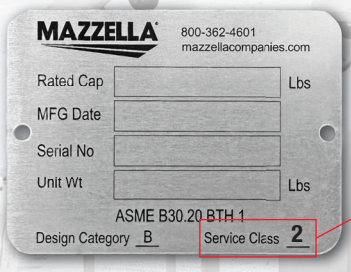
As defined by ASME BTH-1, “Design Category B should be designated when the magnitude and variation of loads applied to the lifter are not predictable, and where loading and environmental conditions are severe or not accurately defined.” This is the most common design category with most below-the-hook lifting devices falling under Design Category B. These lifters can fall under service class 0-4 and require a nominal design factor of 3:1 to the yield strength of the steel.

ASME BTH-1 SERVICE CLASSES »

The Service Class of a lifter is based on the load cycles that a lifter will see in a 24-hour period. The service class 0-4 designation defines the total life cycles a lifter can see based on the specified fatigue life of the lifter.

SERVICE CLASS	LOAD CYCLES
0	0 - 20,000
1	20,001 - 100,000
2	100,001 - 500,000
3	500,001 - 2,000,000
4	OVER 2,000,000

TABLE C2-1 SERVICE CLASS



EXAMPLE:
A device designed at a **service class 2** operating at **200 cycles** per day will last **5 years**

	DESIRED LIFE (IN YEARS)				
CYCLES PER DAY	1	5	10	20	30
5	0	0	0	1	1
10	0	0	1	1	2
25	0	1	1	2	2
50	0	1	2	2	3
100	1	2	2	3	3
200	1	2	3	3	4
300	2	3	3	4	4
750	2	3	4	4	4
1,000	2	3	4	4	4

TABLE C2-1 SERVICE CLASS LIFE

SCAN TO LEARN MORE!



