CanSaw Ltd.
STEEL FABRICATION EQUIPMENT

Tel: 905.319.5988
800.463.0743
Fax: 905.319.8796
888.299.3919
Burlington, ON CA
E-Mail: sales@cansaw.com
Web: www.cansaw.com

ABRASIVE SAW FAQs

A ready reference to compute life ratios of abrasive cutting wheels.

The common denominator by which efficiencies of abrasive cutting wheels are compared is called a LIFE RATIO, which is the ratio of area of material cut to area of wheel used. It is usually expressed:

LIFE RATIO: Area material cut / Area wheel used or LR = M/W

The area of material cut is the unit cross-sectional area of the piece cut multiplied by the number of cuts made. If the material is in round bar form, its unit area may be calculated. If it is round tubing, the area is the difference between the areas represented by the outside and inside diameters.

To find the area of wheel used, measure the diameters of the wheel before and after cutting is performed; then calculate the corresponding areas. The area used is the difference between these two figures.

EXAMPLE:
100 cuts of 1-7/16" diameter bar are required

Starting diameter of wheel 16-3/32"

Finished diameter of wheel 12-5/8"

L.R = M/W or Unit Area x Number Cuts / Area Starting - Area Finish = 1.623 x 100 / 203.4 - 125.2 = 162.3 / 78.2 = 2.075

(2 TO 1 IS AN IDEAL RATIO)

IS WHEEL LOADING CAUSING THE PROBLEM?

Wheel LOADING is a problem that can affect the outcome of all abrasive cutoff applications, wet or dry. It occurs when metal particles from the material being cut adhere to the cutting edge of the wheel, even though machine spindle speed and horsepower, cutting speed, and wheel grade, have been taken into account.

Once started, this loading process usually gets worse rather than better, and can lead to a number of additional, unwanted results if nothing is done to DRESS (or unload) the wheel.

The first of the "unwanted results" to be noticed is excessive smoke, followed by burned, crooked cuts, pinched, or broken wheels, and undue strain on belts, arbor bearings and motors.

At this point, the machine is most often blamed for all these problems, when in fact, it's a loaded wheel.

The SOLUTION to this problem is, quite simply, to **DRESS THE WHEEL!** How is this accomplished? Place a piece (or pieces) of used broken up wheel securely in the vise, and then carefully and slowly bring the loaded wheel into contact with this "free" wheel dresser until the load is gone and a brand new cutting edge is present (in effect a new wheel). Or, as an alternate, purchase a vise mounted diamond wheel dresser, and dress the wheel, carefully using the method described above.

Once the wheel is dressed, and basic operating and cutting instructions are followed (see operating instructions booklet), cooler, clean, quality cuts will follow.

DID YOU KNOW?

The effects of changing wheel specifications are:

Coarser grit size = Faster cut, longer life, but heavier burr.

Finer grit size = Less burr.

As letter grades increase (from F to Z) blade life increases, cutting rate decreases, discolouration becomes more pronounced.

DID YOU KNOW?

The most common causes of wheel breakage are:

Excessive wheel speed.
Improper mounting of the wheel.
Work piece improperly clamped.
Abusive operation.
Deburring cut parts on side of wheel.
Improper machine conditions.
Unequal coolant distribution.
Excessive wheel feed rate.
Wheel grade too hard.