As an economical general-purpose steel, hot-rolled black (HRB) is hard to beat. But it’s also hard to clean, needing anything from a labor-intensive wipedown to shot blasting before it’s painted or coated. Add those costs to the basic material price and HRB loses some of its appeal. When rust enters the picture, as it often does, HRB loses nearly all of its appeal.

Since SCS begins as HRB, it too is a versatile, general-purpose steel. But with SCS, rust doesn’t enter the picture. In fact, SCS removes existing surface rust on HRB, leaving a rust-inhibitive surface that’s so smooth and flat it feels like cold-rolled.

SCS also departs its HRB bloodlines when it comes to cleanliness. SCS is so clean, and its shape so consistent, that it simply makes fabrication easier and faster. Whether you weld it, laser it or form it into anything from rail cars to file cabinets, you’ll do it in less time and with fewer rejects. That’s the SCS Material Advantage.
The Real SCS Advantage Comes in Shop Operations

A clean, smooth, consistent steel makes a huge difference in manufacturing productivity, especially when it replaces steel with scale and dirt, rust, and shape problems. SCS advantages over HRB have been proven in laboratory tests and at top tier manufacturers. Most SCS benefits appear the moment you start using it. For a few, you'll want to optimize process settings to capture maximum SCS advantage. We provide guidelines for how to get the most from SCS - whether it’s boosting laser speed or leaning out paint prep.

**Laser Cutting**

Dirt and scale on HRB can cause beam diffraction, and rust can cause auto shut-off due to excessive surface variation.

The SCS surface is so smooth and clean that laser and plasma cutting speed can be increased as much as 35%, while 'springback' is reduced or, in some cases, eliminated.

- Speed increases of 20 to 35% boost productivity of laser operations.
- Superb quality in cut, pierce and marking.

**Welding**

Cleaner steel makes better welds, so with HRB you either clean (even grind!) the area to weld, or let weld integrity suffer.

Clean SCS welds better, giving a more uniform, stronger bead which improves weld integrity and cuts down on rejects and rework.

- SCS typically offers consistent shape to simplify fit up of welded sections.
- Savings in filler wire may be realized from SCS' more uniform weld bead.

**Prep & Painting**

HRB needs extensive cleanup before painting, plus phosphating pretreatment to obtain acceptable adherence and corrosion resistance.

A lean 2-stage rinse is all that’s needed to prep SCS for many applications. Smooth SCS yields a superior finish for high gloss paints and better corrosion resistance.

- SCS process removes surface rust, yielding a highly paintable surface.
- Big savings from 'leaner' paint prep with no phosphating stages.

**Stamping**

SCS lets lubricant contact the steel, rather than scale, so it works better. HRB scale can foul dies enough to reduce part quality, but SCS keeps dies cleaner.

**Bending & Forming**

SCS in rollforming and pressbrake work performs beautifully. There’s no ‘slip’ in tooling and SCS’ smooth, even surface yields consistent final product shapes.

For bends of 30° or more, some breaking loose of surface scale on the inside radius is expected. Loose scale is easily wiped or rinsed away and paint adherence is not diminished. Scale on outer radii shouldn’t break loose and there’s no microcracking.

**Tube Production**

Tubes made from HRB require cleanup prior to coating or painting and rust is always a concern. It’s often the most frequent reason for rejecting HRB tubes.

SCS tubes, structural or mechanical, can be ready to weld right off the mill, ready to paint right off the mill. The SCS shape, with no edge wave, and SCS cleanliness yields a better, more uniform seam weld.

- In trials to date, SCS welds faster than P&O, so tube mills may run faster.

**Shop Maintenance**

HRB’s scale and grit fouls tools, machines and work areas. It can make blanks more difficult to de-stack if suction cups quickly become dirty and don’t stick to sheets.

With SCS, machines, uniforms and work areas all stay much cleaner. You’ll buy fewer gloves, rags and cleaning supplies and won’t need to deal with rust removal.

- Less time, money lost to cleaning.
- Better shop environment.

**Other Processes**

Stamping

- SCS process removes surface rust, yielding a highly paintable surface.

**Punching**

- Superb quality in cut, pierce and marking.

**Grinding**

- Big savings from ‘leaner’ paint prep with no phosphating stages.

See 'SCS Welding Guidelines' for SCS rinse regimen. Note that SCS surface 'shadows' - even from removed rust - do not show through the paint.

'SCS Welding Guidelines' give you settings and suggested consumables to optimize SCS welding. See your SCS sales rep or www.scsprocess.com.

For more information on using SCS in these or other processes, please contact us to discuss your needs.

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