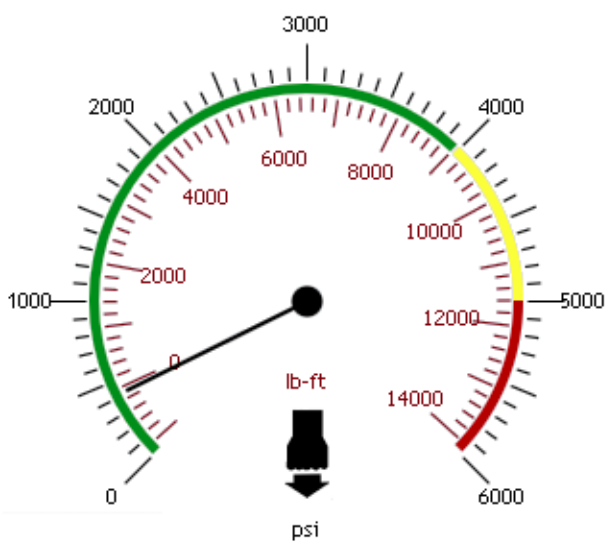
Gauges Benchmark

NEED USER TESTING

Actual IPC 7 Primary Gauges



Pulldown Gauge Description

• The needle will indicate the hydraulic pressure in psi on the outer scale and bit force on the inner scale.

• The inner scale displays the calculated force on the bit, klbf= thousands of pounds force. i.e. 20 = 20,000 pounds force on the bit. Bit force includes the weight and number of pipes on the drill string and negative effect in place by application of holdback.

• The green scale shows the hold back pressure.

• The red scale will display the recommend max force for the Bit as per Bit selected on log in screen.

Usability Analysis

• Impossible to tell the current gauge value of the needle on both scale.

• The gauge is visually busy with all the ticks and numbers.

• The center of the graphic is not used for relevant information.

• The double scale might be confusing for some user.

• The needle is thin and points to a precise value, but value is not diplayed (operator must approximate).

• The needle is thin and hard to see, operator needs to look to see if value approach the Color Marker zones.

• The dynamically adjusting inner scale animation looks cool

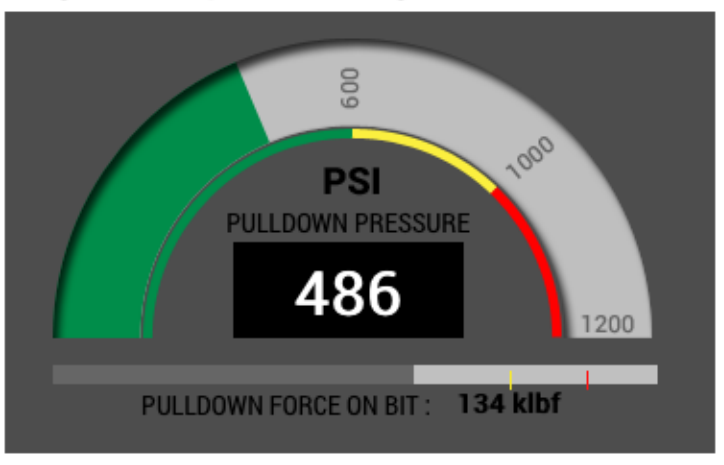
• The inner scale value (force on bit) might not be relevant to the operator (to confirm with operators).

• The Color Marking zone beginning value is hard to read (operator must approximate)

• The inner scale color (red) is unnecessary using an Alert color

NOTE : The important value for the operator might be the Pulldown Force on Bit, in order to evaluate the rock hardness and the bit lifespan.

Original Proposed Gauges



Pulldown Gauge Description

• The gauge value bar (arc) indicates a visual overview of the pressure

• The gauge value bar only displays relevant number (maximum value and beginning of warning and danger zones)

• The center of the gage displays the display units, the gauge label and the actual value.

• The horizontal gauge displays the calculated force on the bit. Bit force includes the weight and number of pipes on the drill string and negative effect in place by application of holdback.

Usability Analysis

• Current gauge value is displayed clearly and bold.

• The gauge is simple and minimalist.

• The gauge bar is bold, allowing the operator to easily evaluate the percentage of the gauge.

• The gauge bar is color-filled, allowing the operator to easily evaluate the range even with peripheral vision, not looking directly.

• The Color Marking zone beginning value is clear (operator can keep this value in mind as a limit to operate. I.e.: I should not exceed 600)

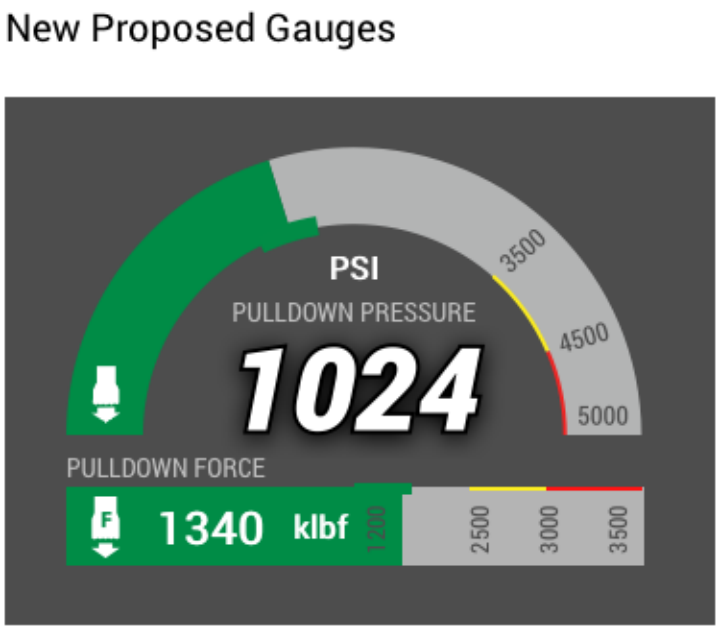
• The needle is thin and hard to see, operator needs to look to see if value approach the Color Marker zones.

• The dynamically adjusting inner scale animation looks cool

• The force on bit gauge is extracted as an optional bar gauge of secondary importance.

• The force on bit gauge is labelled and displays the actual value and the Color Marking zones.

New Proposed Gauges



Improved User Experience

- Self contained information
- Fully responsive widget
- Improved contrast and readability
- Closer look to Bar Gauge
  - Similar Threshold Markings
  - Support Optimal Zone
  - Aligned icons for grouped gauges

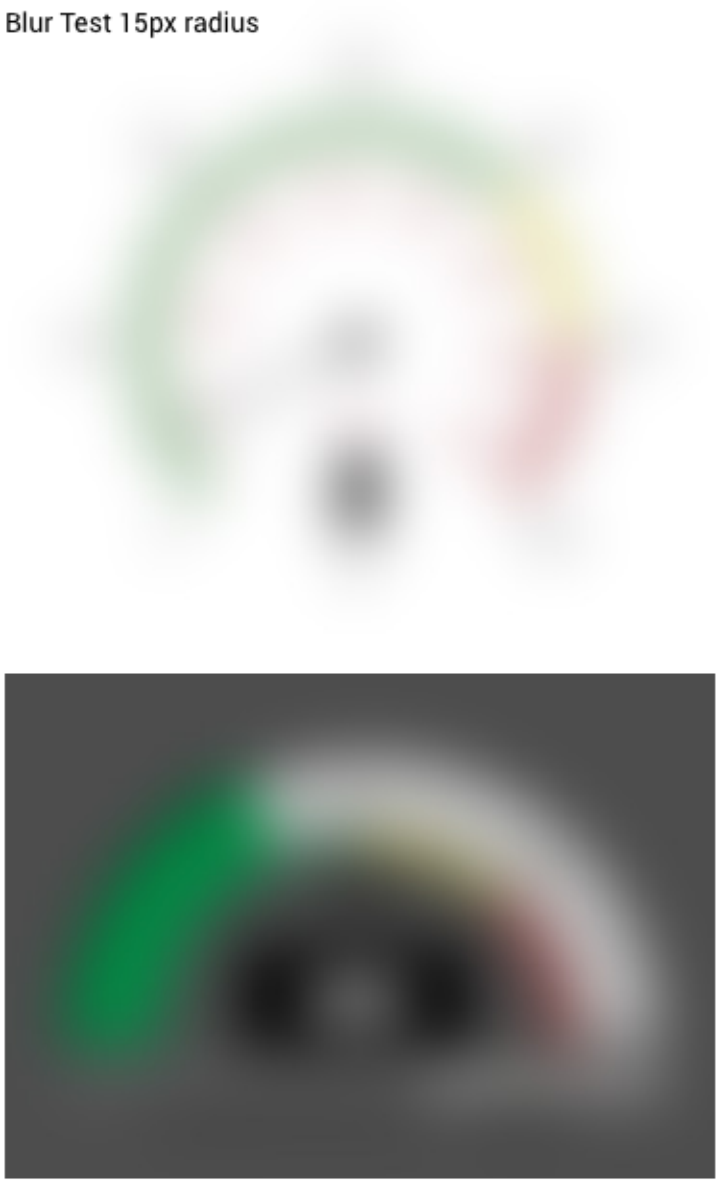
Features

- Default size is 300px width
- Bar is always 40px thick
- Should be fully responsive
- Should support dark and light skin
- Value support max of 6 digits (including minus sign)
- Value should support negative values
- Value should support two decimals (default none)
- Units should support Imperial and Metric units

*Dynamic label support switching from PULLDOWN PRESSURE to HOIST PRESSURE

Peripheral Vision Simulation

Blur Test 15px radius



Peripheral vision test is used to simulate when the operator is looking behind/away from the screen - operator is looking at the physical equipment out the window.
It is usefull to see what draw user's attention when changes occur on the screen.

IPC 7

- Needle very hard to see
- Value not readable
- Warning/Danger zone not usefull (static color)

ORIGINAL GAUGE GROUP

- Possible to approximate bar percentage
- Value not readable
- Optimal zone (green) act as guidance - gauge color
- Warning/Danger static zone creates noise
- Grey bar not visible (status is ok)

NEW GAUGE GROUP

- Possible to approximate bar percentage
- Value almost readable
- Optimal zone (green) act as guidance - gauge color
- Warning/Danger zone visible - entire gauge change color
- Grey bar not visible (status is ok)