

# Tornar® Balanced Circulation Valve

## Clean and solids-free Wellbore

The Tornar® Balanced Circulation Valve (TBCV) is a circulating sub for wellbore clean up and displacement applications, boosting the annular velocity in the wellbore casing and liner annulus. It can be part of a complete wellbore cleaning tool string used during the displacement process before running completion.

The TBCV achieves a higher flow rate to be pumped up the production casing, circulating through the liner and the production casing. The result is a balanced fluid velocity in the wellbore annulus during displacement. The valve can isolate the lower drill string rotation during circulation. It is in first position when run in hole, allowing torque transmittal to upper and lower drill string while circulating 100% of the flow through the tool. In this position, the velocity booster ports are closed.

The TBCV can open velocity booster ports to the annulus, allowing a higher flow rate to be pumped up the production casing than normally possible in liner and production casing. This balances the fluid velocity in the different size wellbores during displacement. It is used for displacements, post perforating, pre-fracturing, multi-zone completions, milling, burning, fishing, and smart completions.

### Benefits

- Operation at maximum parameters
- Heavy duty clutch assembly
- Simple to run
- Multiple run possible

### Features

- Fluid velocity balance in different size wellbores
- No external nuts or bolts
- High strength mandrel

### Specifications

| Typical casing sizes      | 9 5/8" and up                         |
|---------------------------|---------------------------------------|
| Tensile Yield             | NC 50BOX / PIN                        |
| Torsional strength        | 50,8 mm / 2"                          |
| Max. rotation speed       | 150 rpm                               |
| Working temperature       | 150°C / 302°F                         |
| Max. trip speed in casing | 45m/min 150ft/min                     |
| Max. operational pressure | 345 bar - 5000 psi                    |
| Material (main body)      | AISI 4145M 110 KSI/ 125 KSI           |
| Force to open             | 87 kN - 348 kN / 20 000 - 80 000 lbs. |

Specifications may be subject to change.