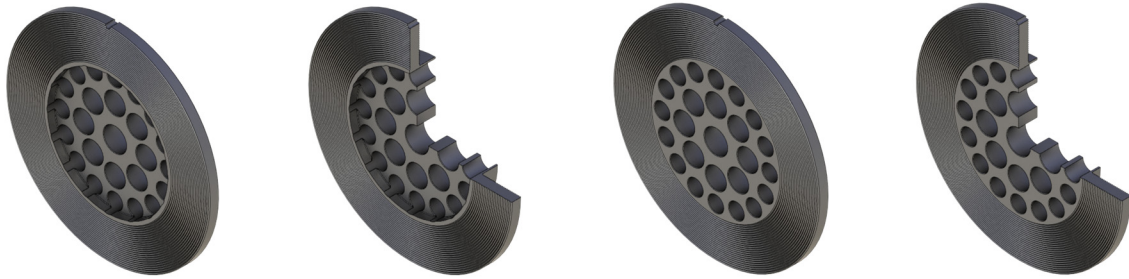


## CPA Flow Conditioner Installation Types

### Type A – Raised Face Flange – FOEL/FOE



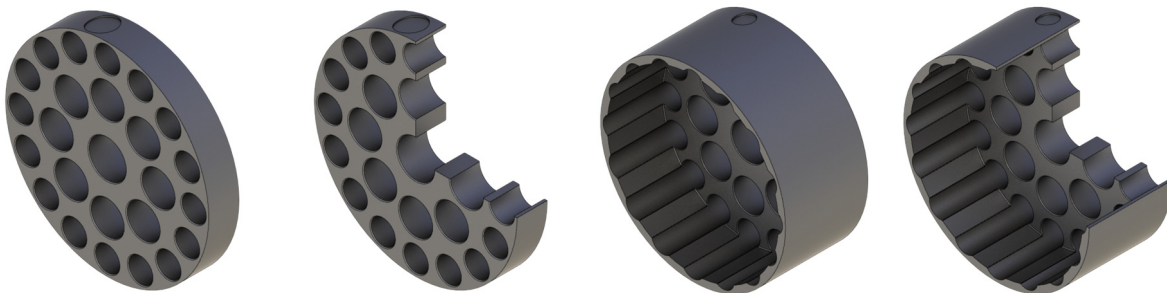
Type A flow conditioners are used for ANSI Raised Face flange applications. Due to the offset flange lip, the Type A CPA flow conditioners are inserted into the meter run spool when installed in the ANSI flange. On smaller pipe sizes, the FOEL style CPA 50E's have an increased offset to assist with centering the flange gasket when installing the flow conditioner.

### Type B – Wafer Style – FWO



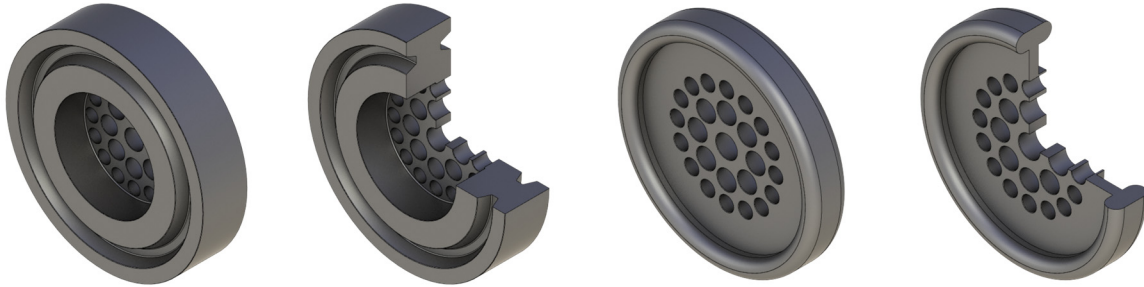
Type B flow conditioners are also used for ANSI Raised Face flange applications. They have a flange thickness that is the same as the flow conditioner thickness. The flow conditioner is not inserted into the pipe bore; it is simply clamped between the pipe flanges. The Type B allows the CPA to be removed without spreading the flanges; permitting retrieval and reinstallation of the flow conditioner without having to adjust the upstream or downstream meter run spool sections. As the Type B flow conditioners can be difficult to center, CPA recommends the use of a CPA FloAlign Tab.

### Type C – Pin Style – TBR/TBRL



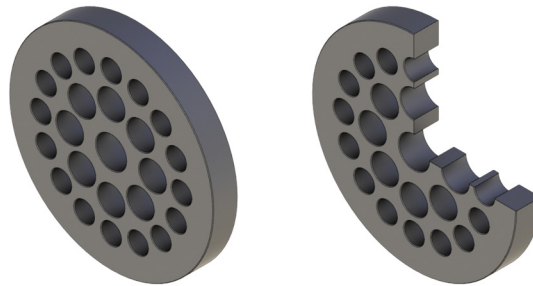
Type C flow conditioners are meant to be a retrofit kit for installations that are currently using pinned tube bundle straightening vanes. An extra flange break is not required as a weld-o-let and a setscrew pin are used to hold the flow conditioner in place. The CPA is slid down the pipe from the upstream flange and pinned in place once it reaches the weld-o-let location. CPA TBR and TBRL pinned flow conditioners have AGA3-2000 test data available for meter run lengths of 13D.

**Type D – Ring Type Joint Female/Male – RTJ/RTJM**



Type D flow conditioners are used for ANSI and API Ring Type Joint flanges. These flanges are used for high-pressure applications where a more robust flange design is required. CPA RTJ flow conditioners are custom designed and manufactured for every application to ensure maximum pressure compliance and component integrity while in service. CPA designs RTJ flow conditioners to be in strict compliance with ASME B16.48, ASME B16.5, ASME B31.3, API 6A and Norsok L-005 as required. CPA RTJ flow conditioners are available in both male and female flange configurations.

**Type E – Ring Type Joint Insert – RIS**



Type E flow conditioners are also designed for Ring Type Joint flanges. Type E RIS flow conditioners differ from Type D RTJ's as they do not include the full RTJ raised face flange surface or the ring joint gasket grooves. RIS flow conditioners are designed to insert into a counterbore in the downstream flange. They are sized to be larger than the pipe bore and require modification of the flange to be properly used.

**Type F – Weld In – WIO**



Type F flow conditioners are designed to be welded into a pipe or flange application. CPA offers these in two varieties; a face welded option for welding directly into a pipe flange and a butt weld option that is welded between two sections of pipe.