

DIVIDING WALL COLUMN TECHNOLOGY

# DWC Prime

High-purity multicomponent separation delivered in a single column shell — engineered, built and commissioned end to end.

PRODUCT BROCHURE

# Reinventing distillation with **DWC Prime**

Since the mid-1940s, the Dividing Wall Column has offered a way to reinvent age-old distillation. With modern process simulation and design, **DWC Prime** has emerged as a proven technology over the past two decades — lower capital investment and lower operating cost, all within a single shell.

DWC Prime is our adaptable take on the technology, engineered to **retrofit into existing refining assets**. We stay involved as a long-term partner through design, delivery and start-up — not a one-off vendor.

**3+**

high-purity product streams from a single column shell

**20–50%**

lower CAPEX and OPEX, with a fast payback

**Up to 50%**

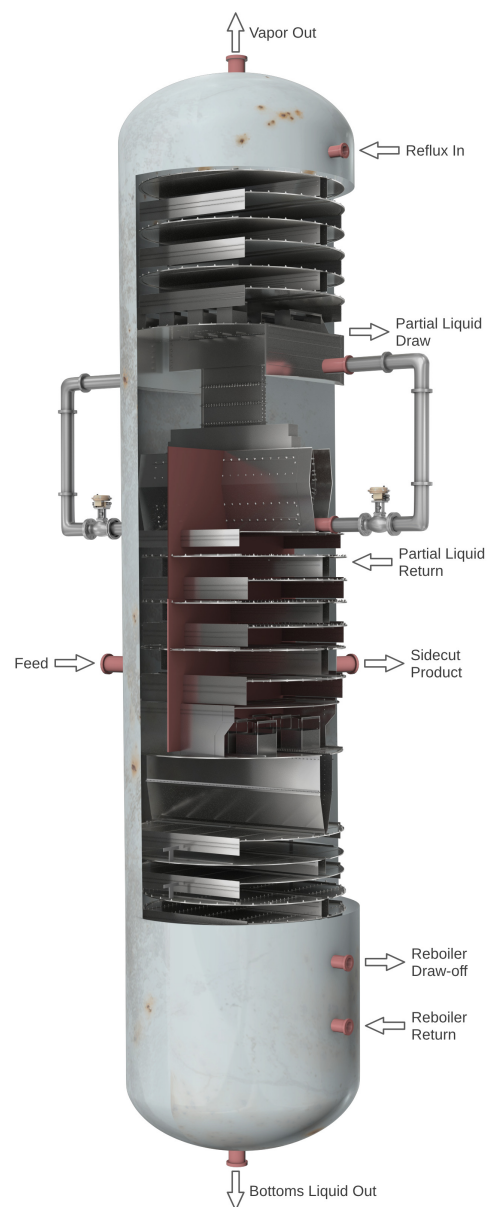
fewer columns and plot space vs. a conventional train

**25+**

dividing wall columns commercialized worldwide

## Benefits of the DWC Prime dividing wall column

- Separates multicomponent mixtures into **three or more high-purity product streams** in a single column.
- Delivers a major capacity uplift **without adding new columns** — ideal for revamping high-purity side-cut columns.
- Produces **sharper separations**, upgrading low-value streams into premium products.
- Replaces multiple conventional columns with one DWC, cutting equipment count and footprint.
- Debottlenecks downstream units — **Isomerization, CCR, Para-Xylene and Aromatics Recovery**.



DWC PRIME — COLUMN ELEVATION & PRODUCT NOZZLES

**ONE SHELL**

One shell, one reboiler, one condenser — three or more products on spec.

# Inside a **DWC Prime** column

One or more vertical partition walls within a single shell create distinct fractionation zones. By minimizing the remixing of components that occurs in conventional arrangements, DWC Prime achieves superior thermodynamic efficiency — lower energy use and lower capital investment.

## Four primary sections of a middle-wall column

**1**

### Top Common Section

Resembles a conventional column — the lightest components are separated from the intermediate-boiling ones.

**2**

### Prefractionation Section

The feed enters here, where the initial split between light and heavy key components prepares it for downstream fractionation.

**3**

### Main Section

Intermediate-boiling components are concentrated; a rectifying section on the opposite side of the wall enables a high-purity side draw.

**4**

### Bottom Common Section

Heavy components are separated from the intermediate-boiling ones to reach the target bottom-product purity.

## 1 Shell

MULTIPLE SEPARATIONS IN ONE TOWER

## 3+ Products

HIGH-PURITY STREAMS PER COLUMN

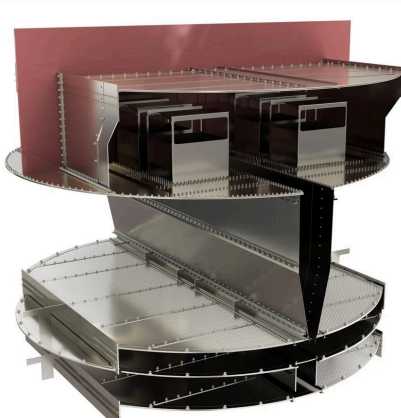
## ↓ Energy & Capex

VS. CONVENTIONAL SYSTEMS

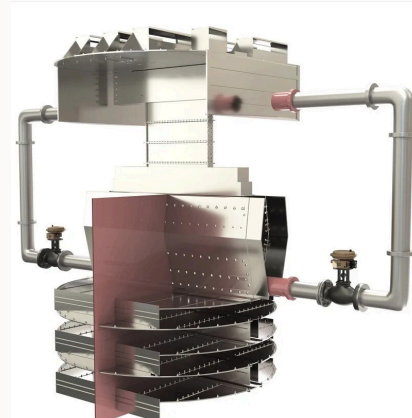
## The dividing wall & its internals



PLAN VIEW ACROSS THE DIVIDING WALL



VAPOR SPLIT AT THE BASE OF THE WALL



LIQUID DISTRIBUTOR ABOVE THE WALL

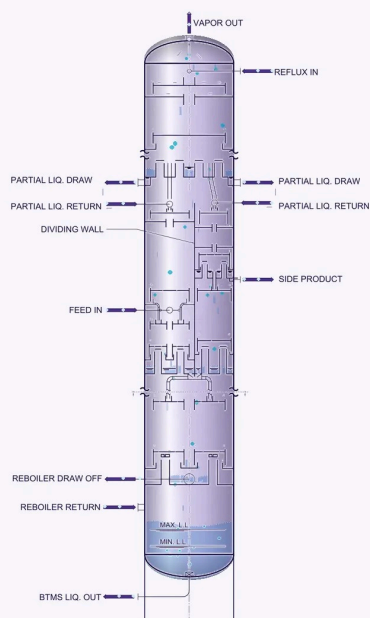
### No moving parts

A proprietary liquid-splitting system sits above the wall; vapor is divided below it purely through hydraulic design and pressure-drop balancing. A portion of the liquid is re-split in an adjustable ratio, giving fine control of the wall's two sides without any internal moving components.

## CONFIGURATIONS

# One shell, placed where the split needs it

DWC Prime is a family of thermally-coupled arrangements — the dividing wall goes exactly where the separation needs it. Standard, top-wall and bottom-wall configurations cover the most common duties.

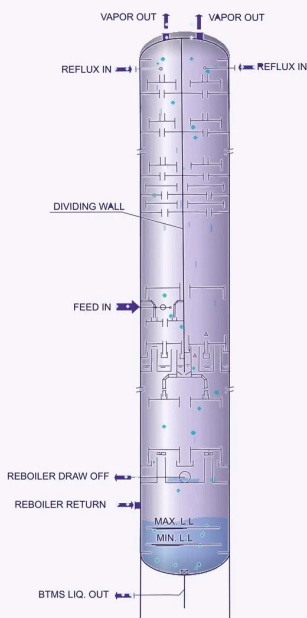


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### STANDARD

#### DWC Prime Column

A single central dividing wall turns one shell into a prefractionator plus a main section — three on-spec cuts (overhead, side product and bottoms) with one reboiler and one condenser.

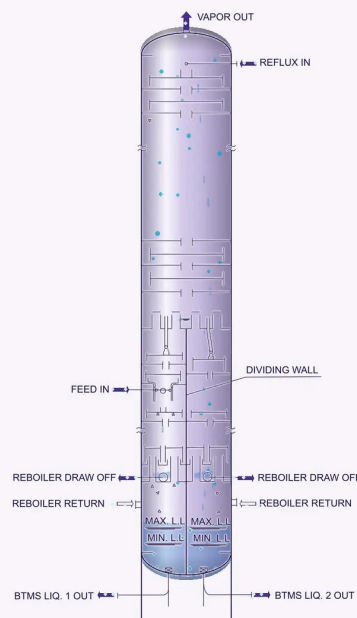


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### TOP DWC

#### Top Dividing Wall Column

The wall sits in the upper (rectifying) section, producing two high-purity overhead products alongside a shared bottoms — ideal when the two lightest cuts must be split cleanly.



© DWC Innovations

### BOTTOM DWC

#### Bottom Dividing Wall Column

The wall sits in the lower (stripping) section, yielding two distinct bottoms products under a shared overhead — suited to separating the two heaviest cuts.

## DWC PRIME VS. A CONVENTIONAL TWO-COLUMN SEQUENCE

One DWC Prime shell does the work of two columns — with less equipment, space and cost

**12 → 7**

**Fewer equipment items**

A two-column train needs ~12; DWC Prime needs ~7

**30–40%**

**less**

**Plot space**

Smaller footprint on the ground

**20–50%**

**lower**

**Operating cost**

Less energy and utilities (OPEX)

**20–50%**

**lower**

**Capital cost**

Lower installed cost (CAPEX)

## A COMPLETE PACKAGE

# A complete package, end to end

DWC Prime is not a technology you license and then engineer alone. From project feasibility to installation, we bring the full scope of process, control, manufacturing and project expertise **under one roof** — single-point responsibility from concept to a running, performance-tested column.



PROVEN BEFORE  
START-UP

Every control scheme is validated in dynamic simulation before start-up.

PROVEN IN THE FIELD

# World firsts, **commissioned**

These recent DWC Prime and Dual DWC projects mark genuine industry firsts — delivered end to end, not just concepts.

WORLD'S FIRST · CHEMICAL COMPLEX

## A network of DWC Prime columns replaces a full distillation train

DWC Innovations completed the world's first implementation of a network of dividing wall columns — four DWC Prime columns now perform the separation duties previously handled by a conventional train of seven columns at an Indian chemical complex. Commissioned June 2026. DWCI's scope covered the basic engineering package and supply of proprietary internals.

**7 → 4**

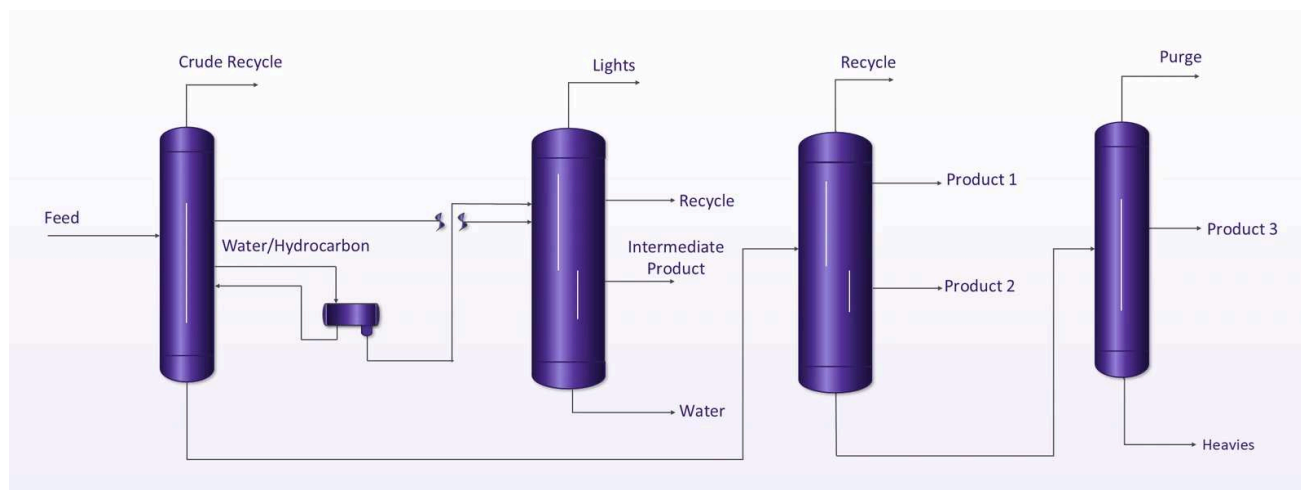
COLUMNS REPLACED

**4**

DWC PRIME COLUMNS

**2026**

COMMISSIONED



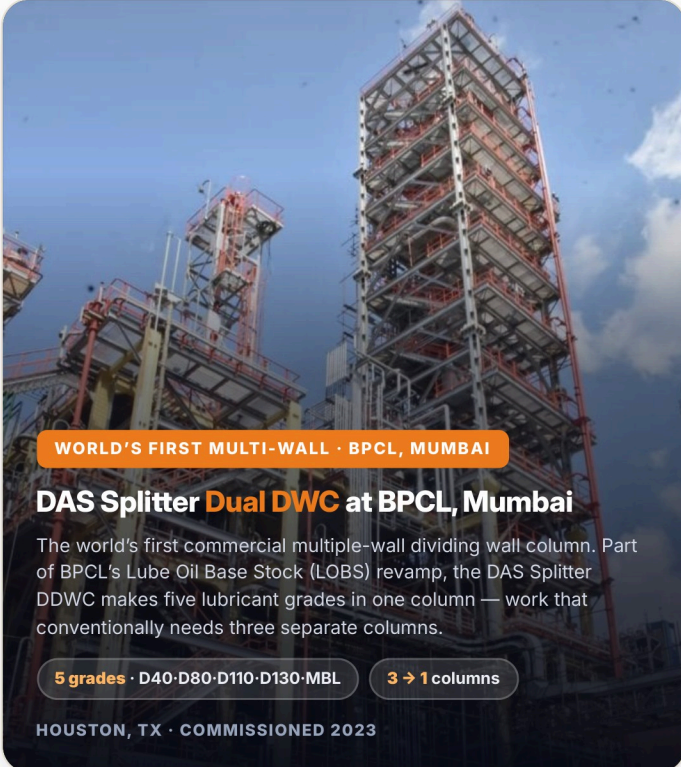
FOUR DWC PRIME COLUMNS REPLACING A CONVENTIONAL SEVEN-COLUMN TRAIN

COMMISSIONED

Four DWC Prime columns, online since June 2026, doing the work of seven.

PROVEN IN THE FIELD · CONTINUED

# Refinery-proven, column by column



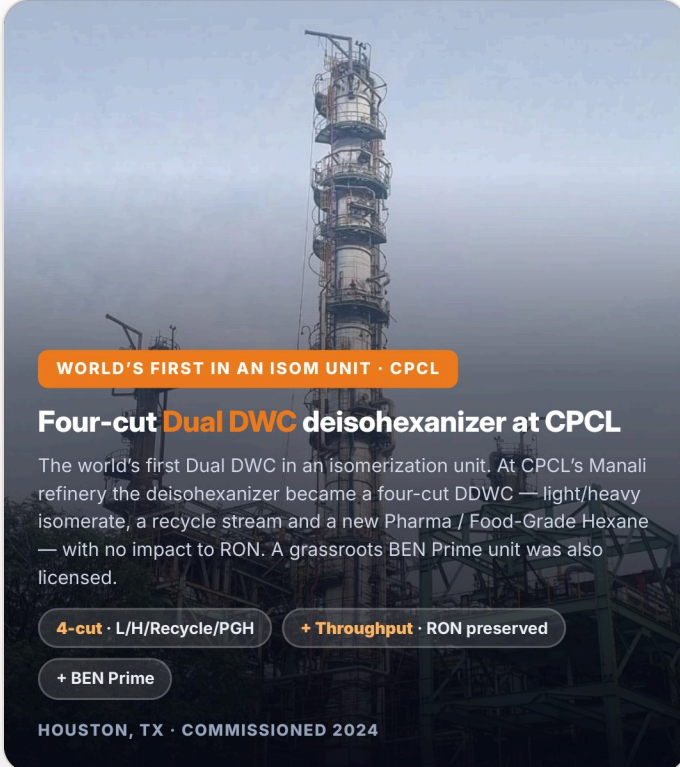
**WORLD'S FIRST MULTI-WALL · BPCL, MUMBAI**

## DAS Splitter **Dual DWC** at BPCL, Mumbai

The world's first commercial multiple-wall dividing wall column. Part of BPCL's Lube Oil Base Stock (LOBS) revamp, the DAS Splitter DDWC makes five lubricant grades in one column — work that conventionally needs three separate columns.

**5 grades · D40-D80-D110-D130-MBL**    **3 → 1 columns**

HOUSTON, TX · COMMISSIONED 2023



**WORLD'S FIRST IN AN ISOM UNIT · CPCL**

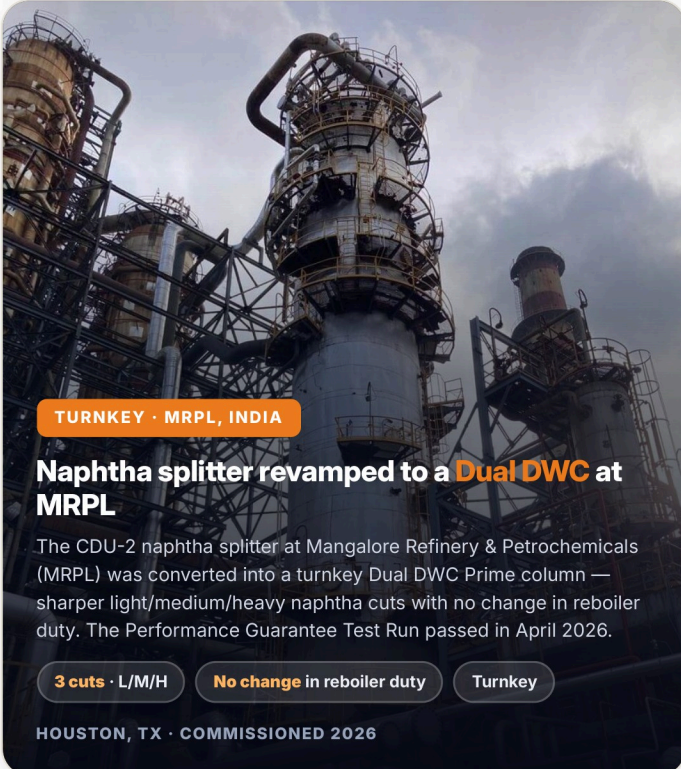
## Four-cut **Dual DWC** deisohexanizer at CPCL

The world's first Dual DWC in an isomerization unit. At CPCL's Manali refinery the deisohexanizer became a four-cut DDWC — light/heavy isomerate, a recycle stream and a new Pharma / Food-Grade Hexane — with no impact to RON. A grassroots BEN Prime unit was also licensed.

**4-cut · L/H/Recycle/PGH**    **+ Throughput · RON preserved**

**+ BEN Prime**

HOUSTON, TX · COMMISSIONED 2024



**TURNKEY · MRPL, INDIA**

## Naphtha splitter revamped to a **Dual DWC** at MRPL

The CDU-2 naphtha splitter at Mangalore Refinery & Petrochemicals (MRPL) was converted into a turnkey Dual DWC Prime column — sharper light/medium/heavy naphtha cuts with no change in reboiler duty. The Performance Guarantee Test Run passed in April 2026.

**3 cuts · L/M/H**    **No change** in reboiler duty    **Turnkey**

HOUSTON, TX · COMMISSIONED 2026

# 25+

## Dividing wall columns commissioned worldwide

A long-standing partner to India's leading refiners — MRPL, BPCL and CPCL — each project delivered end to end, from licensing and engineering through the supply of proprietary internals to on-site commissioning.

REFINING

PETROCHEMICAL

LUBE-OIL

ISOMERIZATION

# Where DWC Prime delivers the **biggest wins**

Across the naphtha block, isomerization units and petrochemical service, DWC Prime revamps deliver step-change capacity and product-quality gains — usually with modifications limited to column internals.

## -50%

### Distillation columns eliminated

Replaces entire multi-column trains with a compact network — halving the columns required.

## +30%

### Depropanizer & propylene splitters

Throughput lifts of around +30% with improved recovery, on largely unchanged equipment.

## 2–12 mo

### Deisohexanizer payback

DIH revamps typically pay back in months while lifting isomerization throughput 20%+.

## -27%

### Aromatics feed splitters

A concentrated C6 mid-cut cuts feed to aromatics extraction / benzene saturation by 27%.

## +1 Cut

### C6 products from a DIH

Converts a 3-cut DIH into a 4-cut column — FGH, PGH, isohexane and SBP solvents.

## Recent commissioned revamps

## 40%+ DE-BOTTLENECKING · CCR & ISOM

### Naphtha splitters → a thermally-coupled DWC

Commissioned to de-bottleneck the CCR & ISOM feed-preparation unit — a series of naphtha splitters converted into one thermally-coupled dividing wall column, providing a capacity increase of **more than 40%**.

## <1 ppm NEW CS<sub>2</sub> REGS · PETROCHEMICAL NAPHTHA

### Depentanizer retrofit hits <1 ppm CS<sub>2</sub> in PCN

A South-East Asian refinery's depentanizer was retrofitted into a DWC Prime column producing petrochemical naphtha with **under 1 ppm CS<sub>2</sub>** — and premium-grade gasoline, adding to the refinery's bottom line.

## DWC Prime clients





# We enhance Distillation

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High-purity multicomponent separation in a single column — lower CAPEX, lower OPEX and a smaller footprint, engineered, built and commissioned end to end.

## DWC Innovations LLC

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