

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%

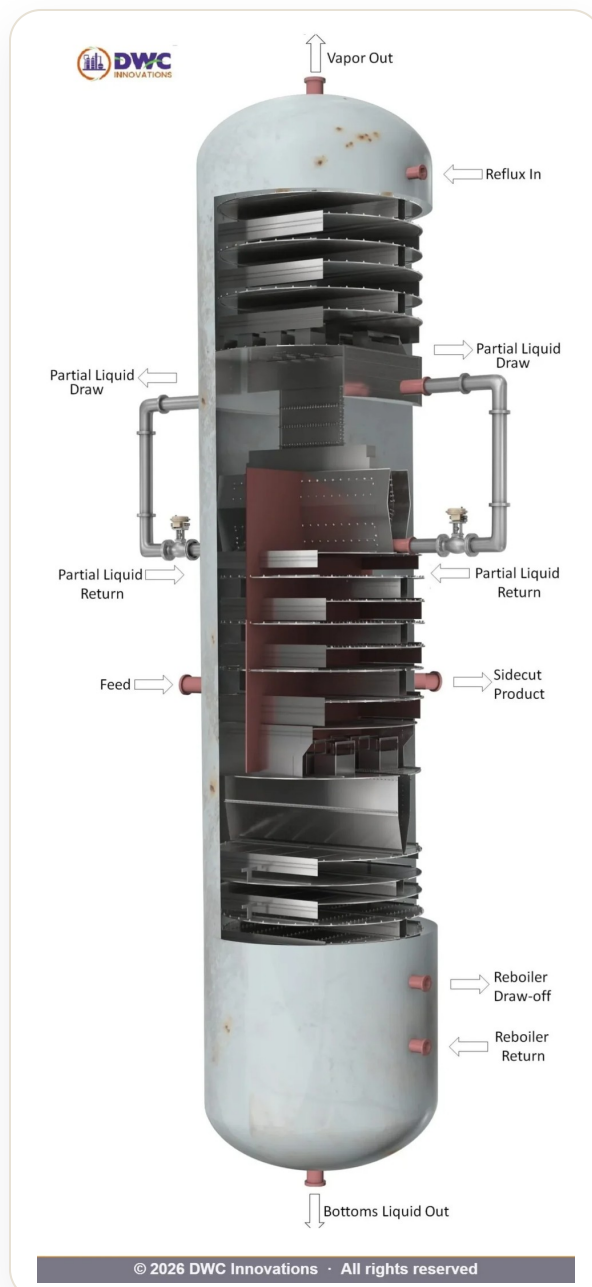
fewer columns and plot space vs. a conventional train

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

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

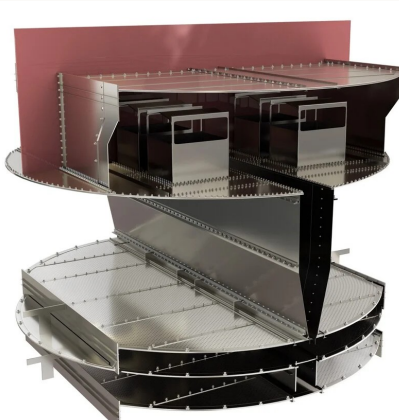
↓ Energy & Capex

VS. CONVENTIONAL SYSTEMS

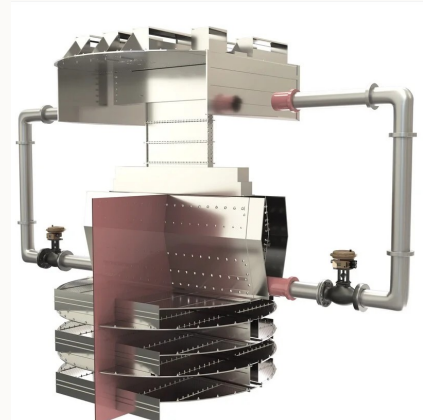
The dividing wall & its internals



PLAN VIEW ACROSS THE DIVIDING WALL



VAPOR SPLIT AT THE BASE OF THE WALL



LIQUID DISTRIBUTOR ABOVE THE WALL

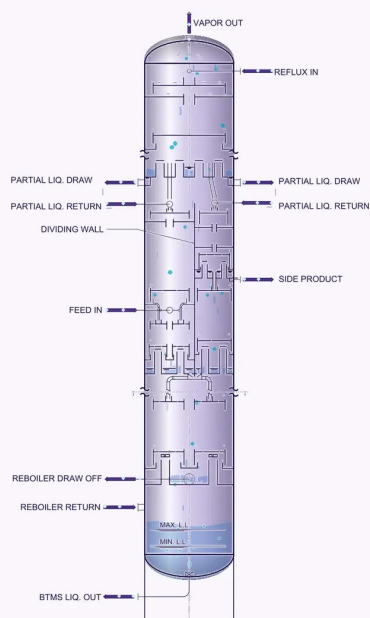
No moving parts

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.

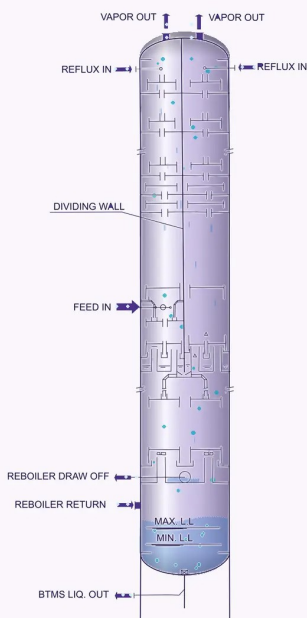


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STANDARD

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.

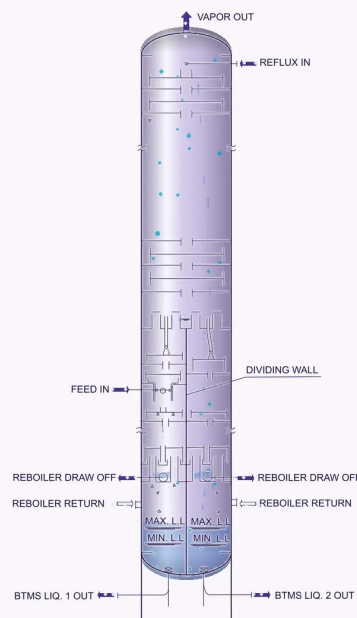


© DWC Innovations

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.



1

Feasibility & process design

A critical evaluation of process requirements, then a complete, optimized process design tailored for smooth, reliable operation.

2

Robust control scheme

Control strategies developed from extensive dynamic simulation — from conventional loops to advanced process control, matched to complexity.

3

Local manufacturing of internals

Column internals are manufactured locally — shorter delivery schedules, lower project cost, and faster turnaround during shutdown windows.

4

Energy optimization

Deep experience in energy-efficient design; many installations integrate heat loads with upstream or downstream units to cut utility consumption.

5

Complete project management

Team DWC handles detailed engineering, procurement, fabrication, site installation and commissioning — to the highest standards.

6

Long-term partnership

Support continues well past start-up — DWC stays engaged across the operating life of the column, tuning and troubleshooting as the unit runs.

One roof

concept → commissioning

Process, control, manufacturing and project delivery in a single accountable team — the same end-to-end scope proven on the MRPL, BPCL and CPCL projects, from licensing and engineering to the supply of proprietary internals and on-site commissioning.

One accountable team
behind every **DWC Prime**
column

Single

POINT OF
RESPONSIBILITY

25+

COLUMNS WORLDWIDE

In-house

FULL PROJECT SCOPE

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

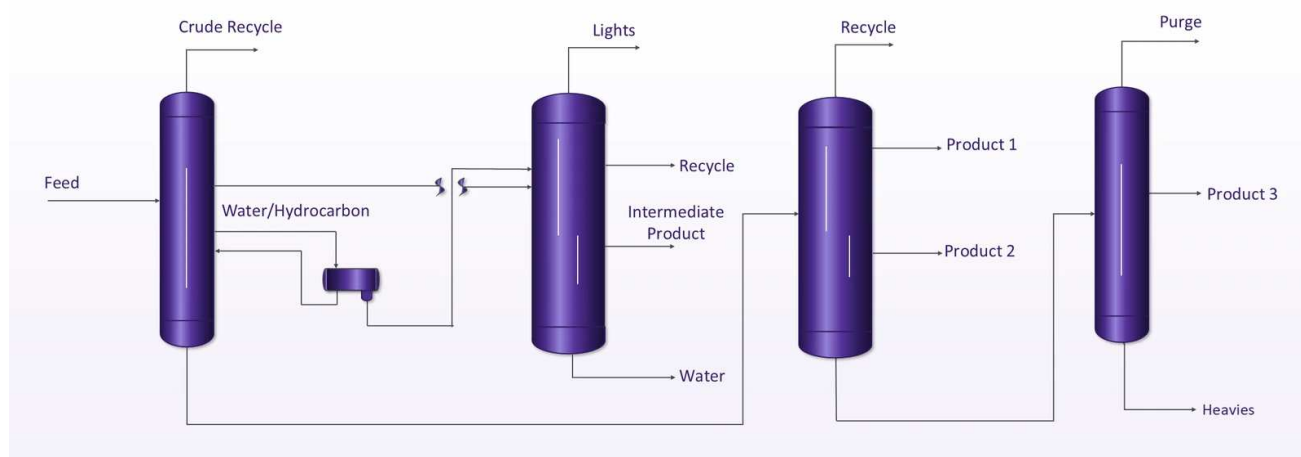
COLUMNS REPLACED

4

DWC PRIME COLUMNS

2026

COMMISSIONED



FOUR DWC PRIME COLUMNS REPLACING A CONVENTIONAL SEVEN-COLUMN TRAIN

Every project, delivered under one roof

Licensing

Proprietary DWC-Prime technology

Engineering

Basic & detailed, process to piping

Internals

Supply & installation, locally made

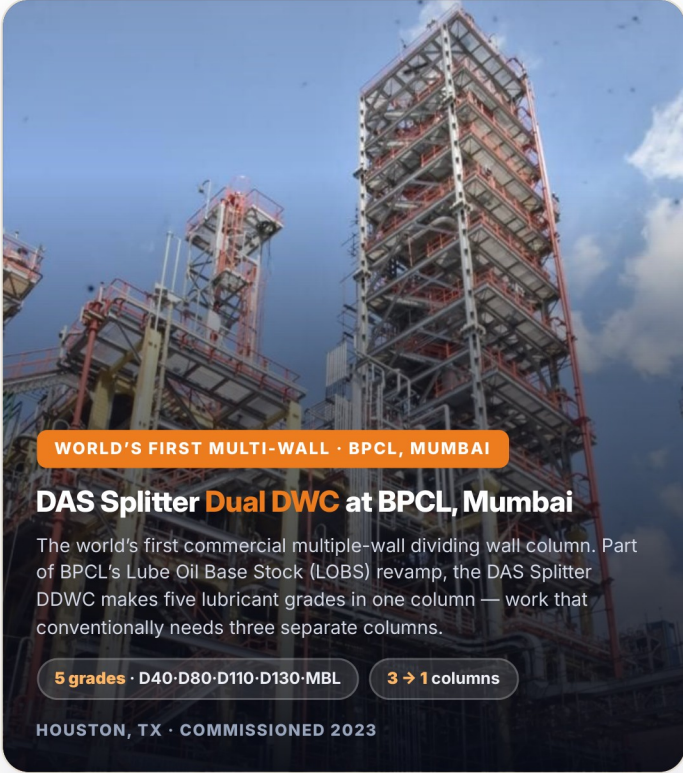
Commissioning

On-site supervision & start-up

Every project on the next page was delivered end to end by a single accountable team.

PROVEN IN THE FIELD · CONTINUED

Refinery-proven, column by column



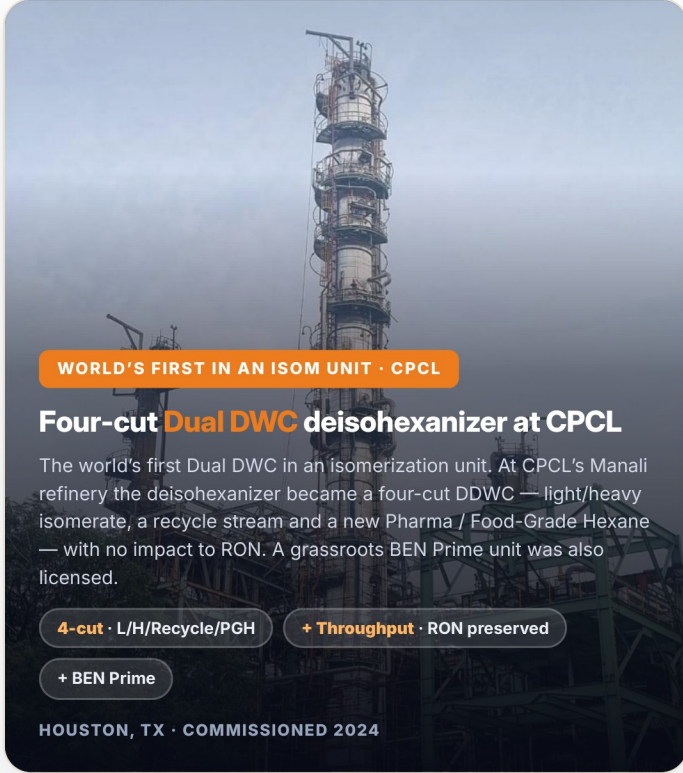
WORLD'S FIRST MULTI-WALL · BPCL, MUMBAI

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

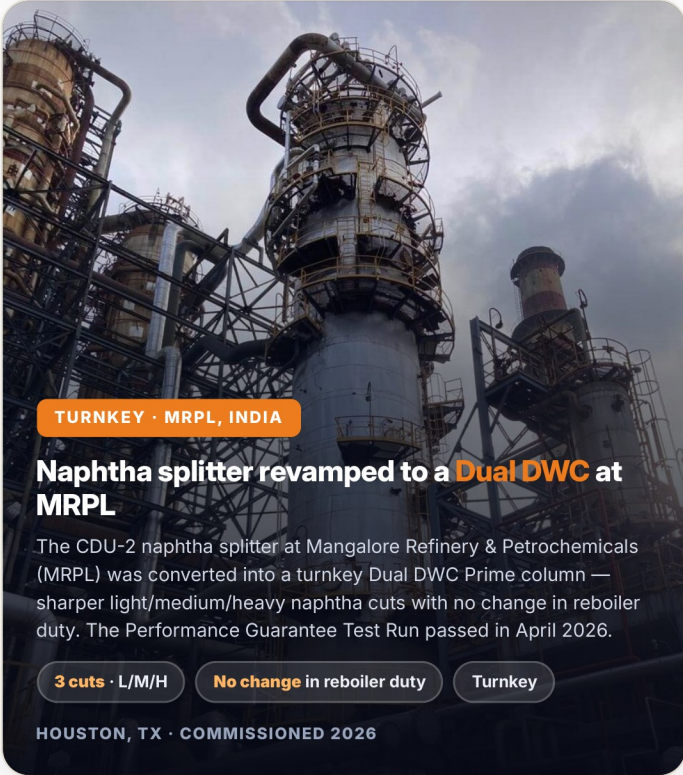
Four-cut **Dual DWC** deisohexanizer at CPCL

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 CS₂ REGS · PETROCHEMICAL NAPHTHA

Depentanizer retrofit hits <1 ppm CS₂ in PCN

A South-East Asian refinery's depentanizer was retrofitted into a DWC Prime column producing petrochemical naphtha with **under 1 ppm CS₂** — and premium-grade gasoline, adding to the refinery's bottom line.

DWC Prime clients





We enhance Distillation

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

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