

DUAL DIVIDING WALL COLUMN TECHNOLOGY

Dual DWC Prime

Four or more high-purity products from a single shell —
installed from concept to commissioning by DWC Innovations.

PRODUCT BROCHURE

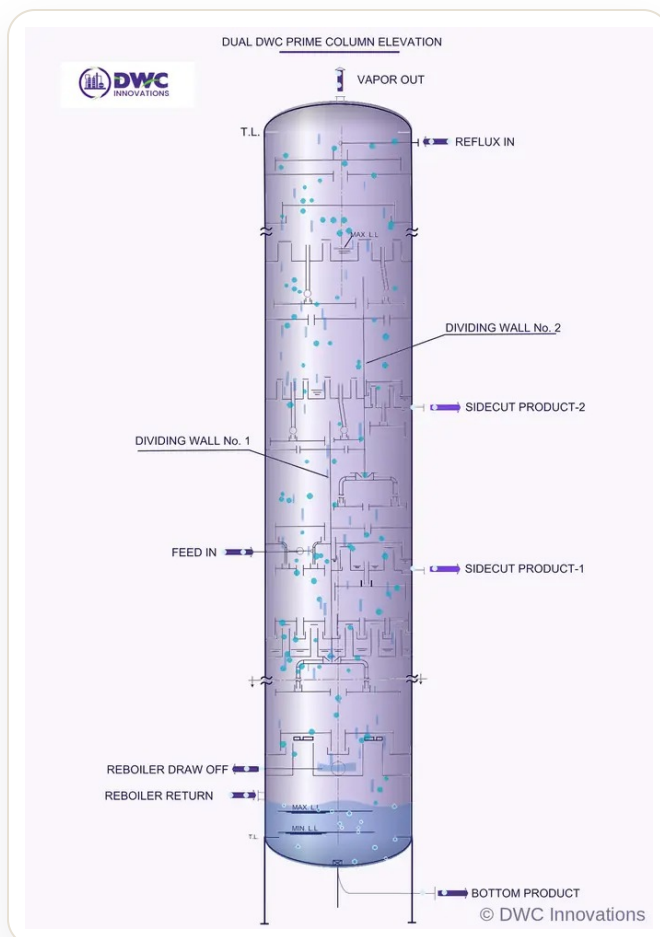
What is Dual DWC Prime

Dual DWC Prime (DDWC Prime) extends our process-intensification portfolio a step beyond a standard single-wall dividing wall column. Instead of merging two columns into one shell, it merges **three or more conventional columns into a single shell**, delivering four or more high-purity products — and because it consolidates more separation duty into one vessel, it reaches an even higher thermodynamic efficiency.

From the outside it looks like an ordinary dividing wall column. Inside, it uses **multiple partitions** — sometimes overlapping, at one or several elevations — positioned to keep the internal liquid and vapor splits simple.

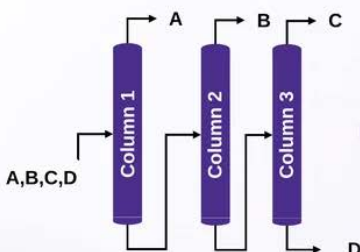
Key benefits

- Combines **three or more** conventional distillation columns into a single shell.
- Produces **four or more** high-purity product streams from that one shell.
- Delivers **higher thermodynamic efficiency** than a single-wall DWC.
- Multiple walls — single or multi-level — keep the liquid and vapor splits **simple to control**.
- Robust, flexible and **easy to operate** despite the added internal separation.
- Lower footprint, reduced capital cost and shorter turnaround versus separate columns.

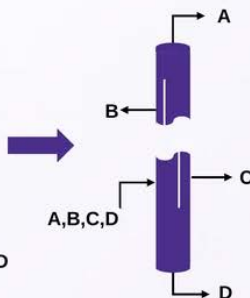


DUAL DWC PRIME COLUMN ELEVATION — TWO DIVIDING WALLS, FOUR PRODUCTS

3 Column Sequence



Dual DWC Prime



DWC PRIME VS. 3-COLUMN SEQUENCE

One column does the work of **three**.

Same four products (A, B, C, D) — from a single dividing-wall column.

Distillation columns	3 → 1
Total equipment items pumps, condensers, reboilers & drums	18 → 8
Plot space	~60%
CAPEX	~50%
OPEX & energy	~50%

APPLICATIONS

Where Dual DWC Prime applies

Dual wall columns are used primarily in large columns and span a wide range of duties — including isomerization, aromatics and lube-oil processing. These are the DDWC Prime project patterns DWC Innovations has executed in the field.

+1
CUT

ISOMERIZATION · DEISOHEXANIZER

3-cut DIH → 4-cut Dual DWC Prime

Unlock high-value C₆ products from an existing isomerization unit. DWC Prime upgrades a three-cut deisohexanizer into a four-cut column producing valuable C₆ products — boosting feed capacity, preserving RON, cutting energy use, adding new revenue, and delivering a fast **2–10 month** **payback**.

3→1
COLUMNS

LUBE-OIL · LOBS UNIT

Three columns into one shell

A DDWC Prime column produces four lubricating-oil grades in a single shell — improving product recovery, cutting energy use, and eliminating the need for three separate columns, reducing plot space and simplifying operations.

3-cut
SHARPER

REFINING · NAPHTHA SPLITTER

Higher-purity naphtha products

A naphtha splitter upgraded to a Dual DWC Prime column delivers sharper three-cut separation and higher-purity light, medium and heavy naphtha — the sharper cuts required to **debottleneck the downstream CCR and isomerization (ISOM) units**. Achieved with **no increase in reboiler duty**, no new columns, and minimal change to existing equipment.

REFINING

PETROCHEMICAL

ISOMERIZATION

AROMATICS

LUBE-OIL BASE STOCK

SPECIALTY CHEMICALS

Practical to build, control and operate

The multiple walls are positioned to keep the internal liquid and vapor splits simple — which is what keeps a dual-wall column robust, flexible and straightforward to run despite the extra separation it performs. Operators gain products without gaining complexity.



WORLD'S FIRST COMMERCIAL MULTI-WALL DWC

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

The world's first commercial application of a multiple-wall dividing wall column. Part of the revamp of BPCL's Lube Oil Base Stock (LOBS) unit, the DAS Splitter DDWC produces five lubricant grades in one integrated column — work that conventionally needs three separate columns — cutting equipment count, energy, plot space and cost.

World's First commercial multi-wall DWC

5 grades · D40-D80-D110-D130-MBL

3 → 1 columns integrated

LOBS unit

HOUSTON, TX · COMMISSIONED 2023



WORLD'S FIRST DUAL DWC IN AN ISOM UNIT

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

At CPCL's Manali refinery the existing deisohexanizer was converted into a four-cut Dual DWC producing light isomerate, heavy isomerate, a recycle stream and a new **Pharma / Food Grade Hexane** product — lifting isomerization-unit throughput with no impact to product RON. A grassroots Benzene Saturation unit (BEN Prime) was also designed and licensed by DWC Innovations.

World's First DDWC in an ISOM unit

4-cut · L/H/Recycle/PGH

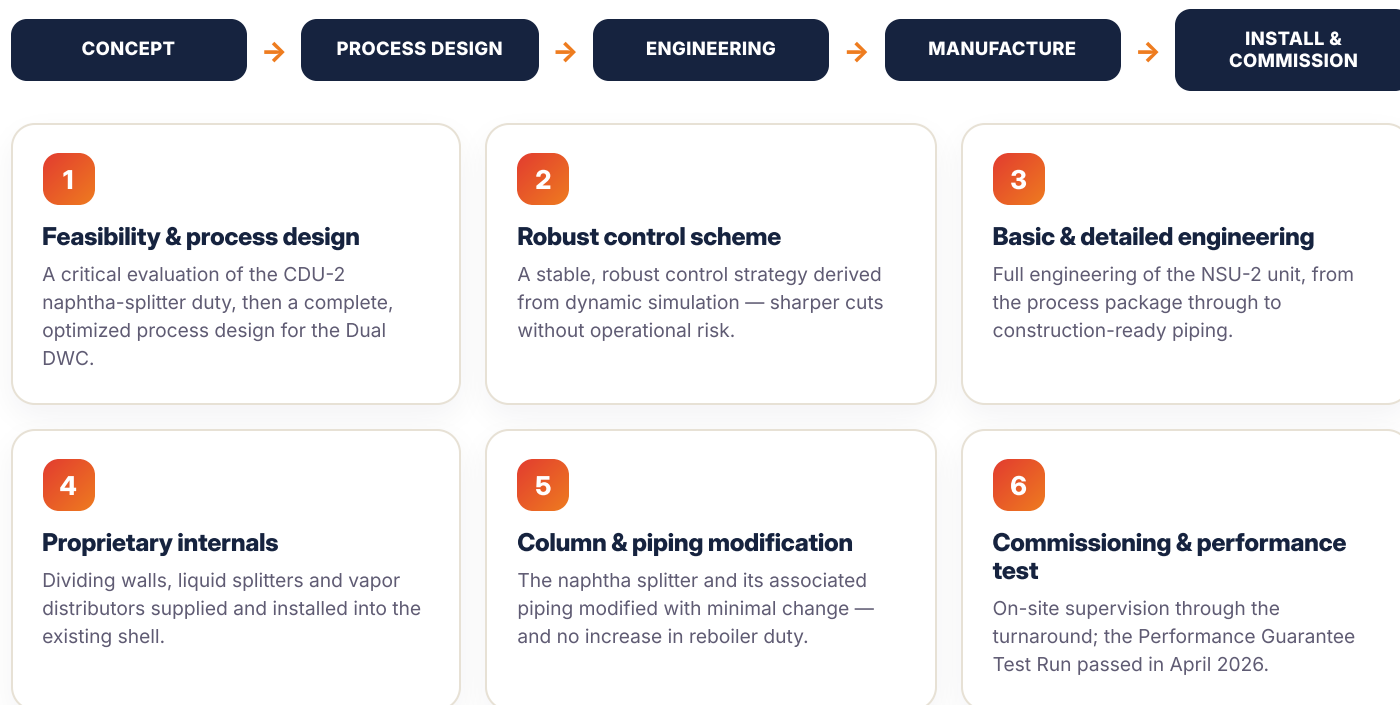
+ Throughput · RON preserved

+ BEN Prime unit

HOUSTON, TX · COMMISSIONED 2024

From concept to commissioning

The CDU-2 naphtha splitter at Mangalore Refinery & Petrochemicals (MRPL) was converted into a state-of-the-art Dual DWC Prime column to deliver the **sharper naphtha cuts needed to debottleneck the downstream CCR and ISOM units** — with no new columns and no change in reboiler duty. Delivered **turnkey** by DWC Innovations, a single team carrying the project from first concept to a performance-tested column.



Dual DWC installed from concept to commissioning by **DWC Innovations**

One team for licensing, engineering, internals and commissioning — not a technology handed over to be engineered by others.

3 cuts · L/M/H naphtha

No change in reboiler duty

Turnkey delivery

PGT passed Apr 2026

HOUSTON, TX · COMMISSIONED 2026

What the revamp delivered

Sharper 3-cut separation

Cleaner light, medium and heavy naphtha from a single shell.

Downstream units unblocked

Improved performance of the downstream CCR and ISOM units on sharper feed.

No added energy

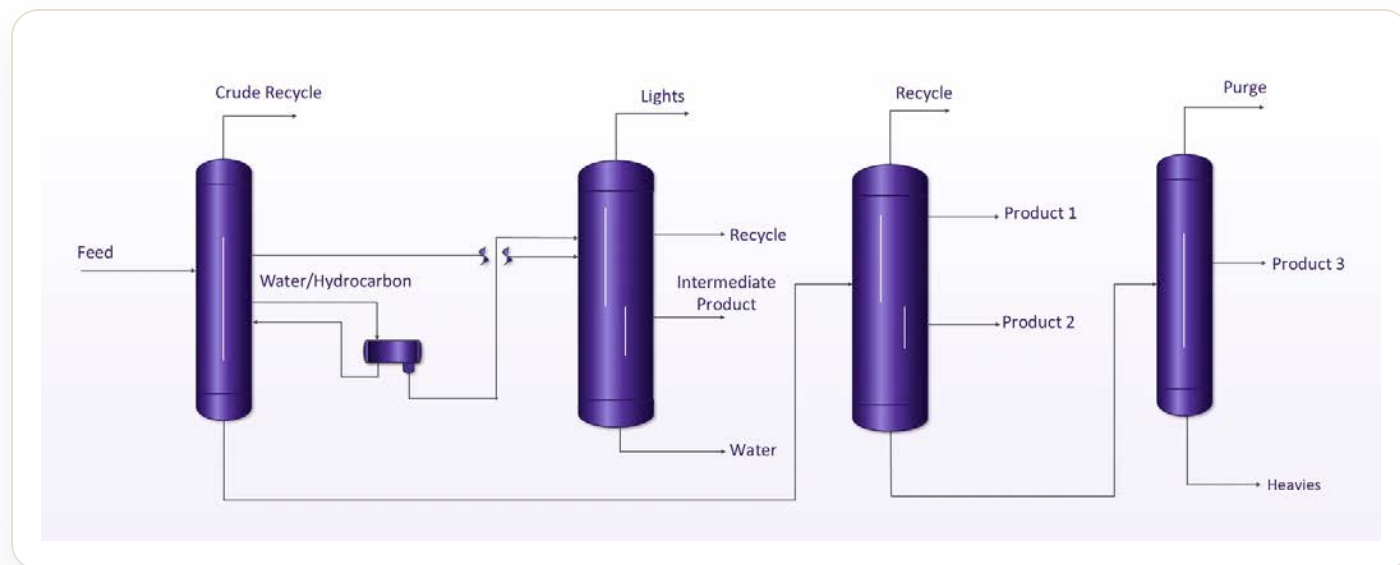
All achieved with no increase in reboiler duty and minimal equipment change.

The same end-to-end scope stands behind every Dual DWC Prime — concept to commissioning, under one roof.

BEYOND A SINGLE COLUMN

We didn't stop at individual DWCs

Having proven Dual DWC Prime column by column, DWC Innovations went a step further — designing and successfully commissioning a **whole network of dividing wall columns** working together, built on the same single- and dual-wall DWC Prime technology.



A NETWORK OF DWC PRIME COLUMNS REPLACING A FULL CONVENTIONAL DISTILLATION TRAIN

7 → 4

COLUMNS
REPLACED

4

DWC PRIME
COLUMNS

1st

MULTI-COLUMN
DWC NETWORK

2026

COMMISSIONED
& ONLINE

WORLD'S FIRST · CHEMICAL COMPLEX

A network of DWC Prime columns replaces a full distillation train

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

From a single dividing wall to a full network — the same DWC Prime technology, now proven across an entire complex.

Single-wall DWC Prime

One shell, three or more products



Dual DWC Prime

Multiple walls, four or more products



Network of DWCs

A full train intensified into a network



Four products, one column

Dual DWC Prime merges three or more conventional columns into a single shell — lower CAPEX, lower OPEX and a smaller footprint, engineered, built and commissioned end to end.

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