C & C HYDRAULICS LTD

Chassis Conversion Specialists

PRODUCT DATASHEET

CBK HI-LOW GEAR PUMPS

Two-stage gear pumps that give high flow at low pressure and switch to low flow at high pressure — cutting power and motor size.

A CBK hi-low pump combines a large-displacement low-pressure pump and a small-displacement high-pressure pump on one shaft, with a built-in check valve and unloading valve. Below the unloading pressure both pumps deliver, so the cylinder moves quickly while it is lightly loaded. Once the pressure rises, the large pump unloads to tank and only the small pump keeps working — giving full pressure with far less power. Typical uses include power units for refuse and waste compactors, balers, presses and machine tools.

CBK HI-LOW TWO-STAGE GEAR PUMP



5.5–14.8 L/min	210 bar	40–45 bar	8 models
Total flow at 1800 rpm	Working pressure, high-pressure stage	Unloading pressure as preset	2.1 – 6 cm³ large, 0.89 – 2.17 cm³ small

KEY FEATURES

- Fast approach on both pumps, full pressure on the small pump
- Smaller motor and less heat than a single pump for the same job
- Rear or body inlet, front or side outlet; CW or CCW rotation
- Built-in check valve and adjustable unloading valve
- Same Ø32 spigot and 2 × Ø9 mounting as our CBK single pumps
- Tang or spline drive shaft

Need help choosing a pump?

Talk to us about sizing, PTO fitment, lead times and pricing.

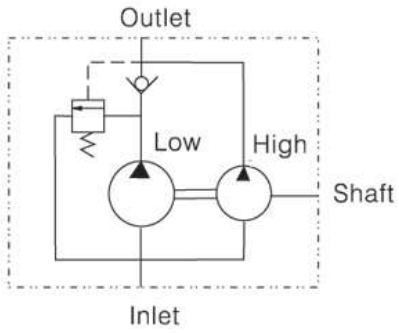
CALL 01535 617880
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WEB www.cchydraulics.co.uk

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How It Works

Two pumps, one shaft and an unloading valve — plus technical data for the range.

HYDRAULIC SCHEMATIC



TWO STAGES

1. **Low pressure (fast):** below the unloading pressure, the large and small pumps both deliver to the outlet, so the cylinder approaches quickly.
2. **High pressure (slow):** when the load raises the pressure past the unloading setting (preset 40 – 45 bar), the large pump unloads to the inlet and the check valve closes.
3. Only the small pump now delivers, up to **210 bar**. Because less oil is pumped at high pressure, the motor power needed falls sharply.

TECHNICAL DATA

Model	Large pump cm³/rev	Small pump cm³/rev	Flow below unload L/min	Flow above unload L/min	Unload bar	Working bar	Speed rpm	L mm
CBK-C2.1/F0.8	2.17	0.89	5.50	1.60	40 – 45	210	1800	154
CBK-C3.2/F1.2	3.32	1.27	8.26	2.29	40 – 45	210	1800	160
CBK-C3.7/F1.2	3.84	1.27	9.20	2.29	40 – 45	210	1800	162
CBK-C4.2/F0.8	4.30	0.89	9.34	1.60	40 – 45	210	1800	162.5
CBK-C4.2/F1.6	4.30	1.66	10.72	2.99	40 – 45	210	1800	165.5
CBK-C5/F1.2	5.10	1.27	11.47	2.29	40 – 45	210	1800	167
CBK-C5/F2.1	5.10	2.17	13.08	3.91	40 – 45	210	1800	170.5
CBK-C6/F2.1	6.03	2.17	14.76	3.91	40 – 45	210	1800	174

Flows at 1800 rpm. Flow below unload is from the supplier data; flow above unload is the small pump only (theoretical). Unloading pressure adjustable 14 – 63 bar, preset 40 – 45 bar. Pressures converted from MPa.

WHY IT SAVES POWER

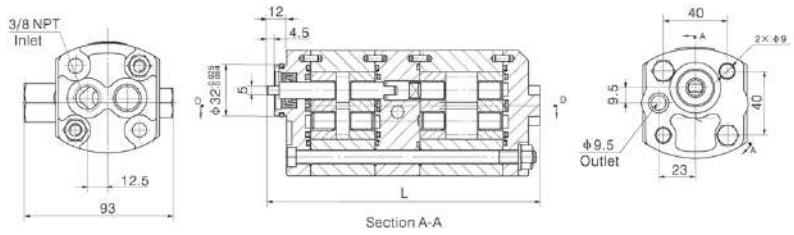
Example — CBK-C4.2/F0.8 at 1800 rpm. A single pump giving the same 9.3 L/min at 210 bar needs about 9.3 × 210 ÷ (600 × 0.85) **3.8 kW**. The hi-low delivers 9.3 L/min up to 40 bar, then just 1.6 L/min at 210 bar — about **0.7 kW** at full pressure. Same fast approach, a fraction of the motor.

PRODUCT DATASHEET

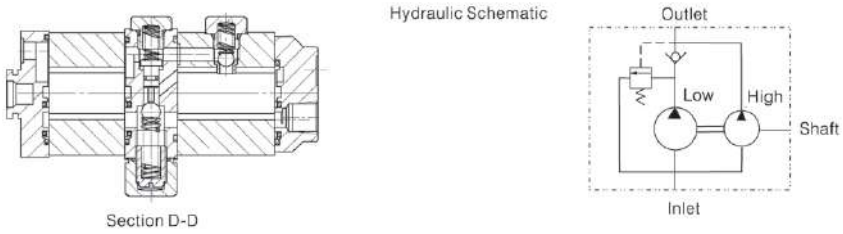
Outline Dimensions

Two inlet/outlet arrangements — length L varies by model (see page 2). All dimensions in millimetres.

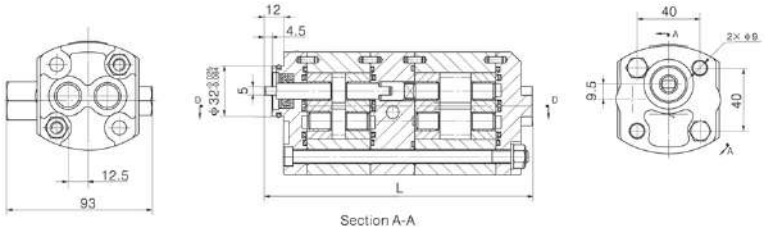
REAR IN / FRONT OUT — SECTION A-A AND END VIEWS



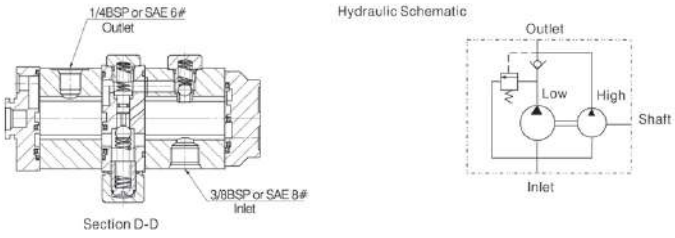
REAR IN / FRONT OUT — SECTION D-D AND SCHEMATIC



SIDE IN / SIDE OUT — SECTION A-A AND END VIEWS



SIDE IN / SIDE OUT — SECTION D-D AND SCHEMATIC



Reference	Dimension	Notes
Spigot / mounting	**Ø32, 2 × Ø9 holes**	Holes 23 mm from centre, 40 mm pitch
Rear inlet	**3/8" NPT or 3/8" BSP**	Body inlet 3/8" BSP or SAE 8 on side-port models
Outlet	**Ø9.5 front, or 1/4" BSP / SAE 6 side**	Front outlet into the power pack end head
Shaft	**Projects 12 mm**	Tang or spline

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Order Code & Selection

How to build a CBK hi-low part number, and how to choose a size.

CBK-C [large] [inlet] [rotation] / F [small] [outlet] [rotation] [shaft]

Example: CBK-C4.2F/F0.8F = 4.2 cm³ large pump, 0.89 cm³ small pump, rear 3/8" NPT inlet, front outlet, anti-clockwise, tang shaft

LARGE PUMP (C) — 63 BAR MAX.

Code	Inlet position and size
(none)	Rear 3/8" NPT
G	Rear 3/8" BSP
B	Body (side) 3/8" BSP
A	Body (side) SAE 8

Item	Options
Displacement	2.1 – 6 cm³/rev
Rotation	(none) CW · F CCW

SMALL PUMP (F) — 210 BAR MAX.

Code	Outlet position and size
(none)	Front Ø0.374" (9.5 mm)
B	Side 1/4" BSP
A	Side SAE 6

Item	Options
Displacement	0.63 – 2.1 cm³/rev
Rotation	(none) CW · F CCW
Shaft	(none) tang · D spline

CHOOSING A SIZE

1. **Fast-approach flow** sets the large pump: pick the model whose flow below unload gives the cylinder speed you want while it is lightly loaded.
2. **High-pressure flow** sets the small pump: its flow (small displacement × speed) gives the final pressing speed.
3. **Motor power** is set by the high-pressure stage: P (kW) small-pump flow × 210 ÷ 510, plus the low-pressure stage: total flow × unload pressure ÷ 510. Size the motor for the larger of the two.
4. **Ports, rotation and shaft** — choose from the codes above to suit the power pack.

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