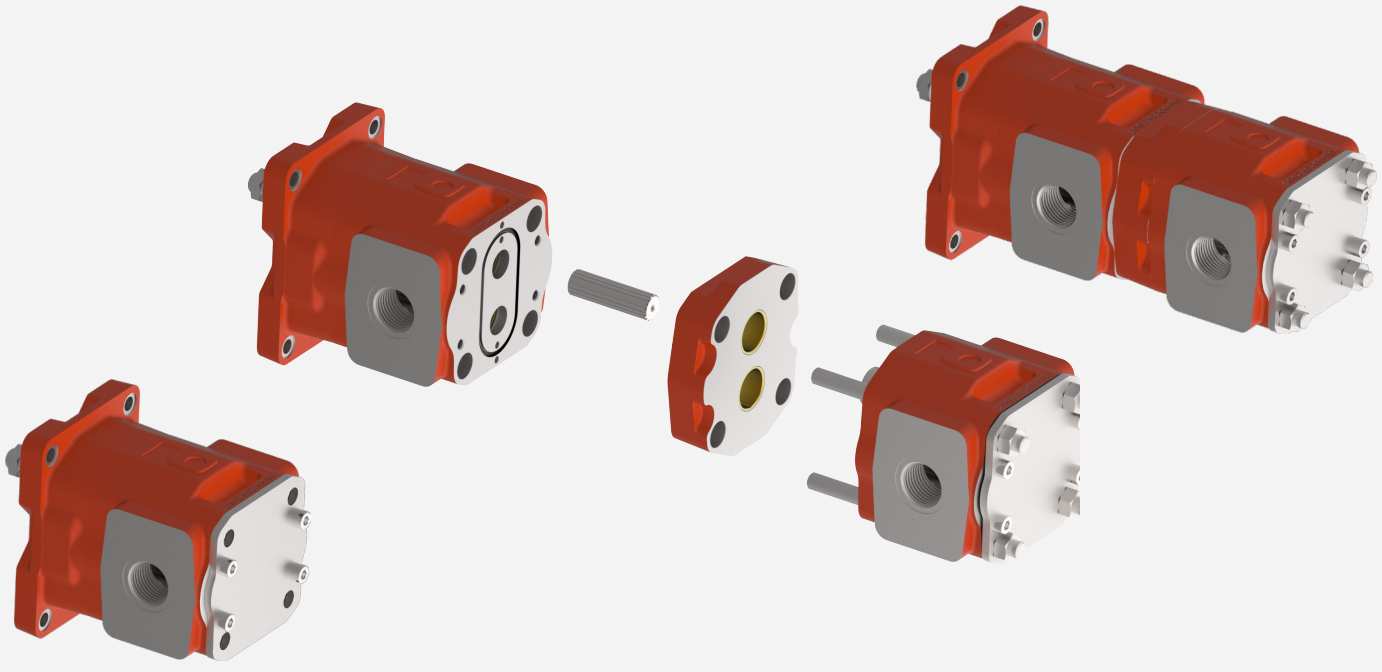
BUCHER
hydraulics

# External Gear Pumps

AP250FP



## Flexibile pumps for dealers

- High efficiency
- Noise and vibration reduction
- Long life expectancy
- Possibile multiple pumps created by dealers

# General Information

## The new AP250FP completes Bucher Hydraulics external gear pump range for dealers.

In order to increase its presence in the resale market for its external gear pumps' product line, Bucher Hydraulics has developed an alternative version of the well-known AP250HP cast iron Group 2.5 pump: the AP250FP (Flexible Pump).
This new variant enables switching from single to multiple pumps in the 2.5+2.5 and 2.5+2 groups by simply removing the rear closure plate and adding a kit containing the dedicated intermediate flange.
The drive gear of the AP250FP pump is designed to allow coupling of a second pump.

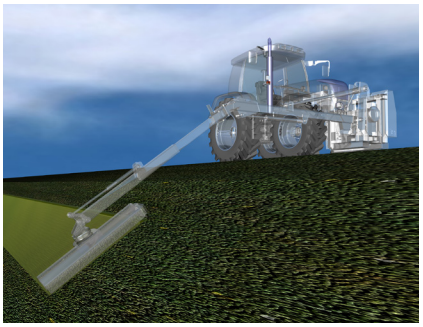
Dealers no longer need to purchase multiple pumps directly from Bucher Hydraulics, as they can convert a single pump in their possession by adding the necessary components, which they may already have in stock.

For further information, please refer to the following catalog codes:

AP250FP_200-P-991247-en
AP250HP_200-P-991234-en
AP212-Dealers_200-P-991233-en
AP212HP_200-P-991236-en

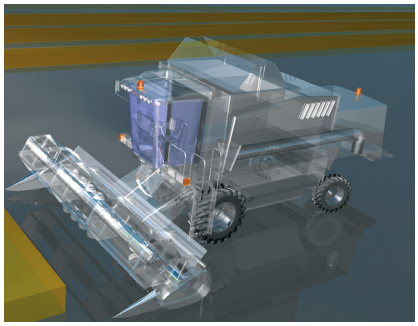
## Potential applications

### Hedge cutter



### Grape harvester

### Combine harvester



# Constructions & Benefits

**A** - Cast iron front cover:
the standard frontcover design can be fitted to different pump interfaces.

**B** - Cast iron main pump body:
wide range of displacements obtainable with two different basic bodies.

**C** - HNBR seal material instead of NBR

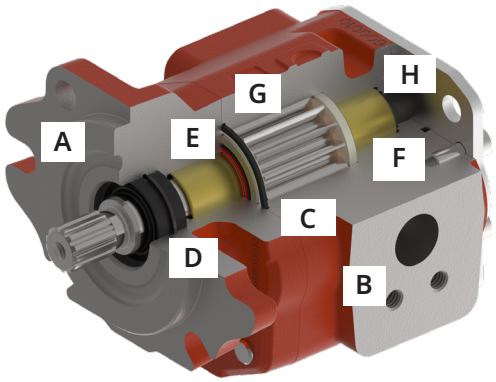
**D** - Double HNBR shaft seals

**E** - Pressure balance plate:
manufactured in bronze instead of aluminium.
Balancing area and intermediate notches optimised.

**F** - Bearings:
Large diameter bearings, fitted both in front cover and body

**G** - Teeth
Large number of teeth, tooth profile optimised, larger shaft diameter.

**H** - Removable rear plate




## Benefits

| | | | |
|---|---|---|---|
| **A-B**<br>Flexibility/smaller number of components | **A-D**<br>Reduced risk of external leakage | **A-B-E**<br>High efficiencies/pressure limits | **A-B-E**<br>Long life expectancy |
| **C-D**<br>Wider temperature range | **E-G**<br>Lower pressure ripple | **E-G**<br>Noise/vibration reduction | **E-F-G**<br>Higher load capacity and transmissible torque |
| **E-F-G**<br>Low friction and high mechanical efficiency | **E-F-G**<br>Higher max. pressure limit | **H**<br>Possible multiple pumps created by dealer | |

The front mounting flange and the body are made off high strength cast iron to give thermal stability, resistance to contamination and the strength necessary for persistently high levels of performances and life, needed in demanding heavy duty applications.
Cast iron body and flange, bigger shaft diameter, bigger bearing dimension and bronze trust plate have been optimized to provide heavy duty, high pressure limits, high efficiencies and long life expectancy.
Noise and vibration reduction due to the high number of teeth. The bearings are located in the front mounting flange, in the body and, for multiple pumps, in the intermediate cover

# Technical Data

## Features

| | | | |
|---|---|---|---|
| Displacement | (63-75-86 to be defined) | 26 - 54 | $cm^3/rev$ |
| Max continuous pressure (P) | (depending on displacement) | 300 | bar |
| Fluid temperature range | * Extreme condition temperature range: -30 + 100 °C | -20 / +90 | ° C |
| Fluid temperature (with NBR seals) | | -20 / +80 | °C |
| Recommended fluids | hydraulic mineral oil based | | |
| Viscosity operating range | recommended<br>permitted (not continuous)<br>permitted for starting | from 20 to 120 $mm^2/s$ (cSt)<br>up to 700 $mm^2/s$ (cSt)<br>2000 $mm^2/s$ (cSt) | |
| Standard seals material | HNBR standard | | |
| Contamination class | working pressure > 210 bar | 19/17/14 ISO 4406 - 8 NAS 1638 | |
| | working pressure < 210 bar | 20/18/15 ISO 4406 - 9 NAS 1638 | |

(*) : Extreme working temperature limits values can not be combined

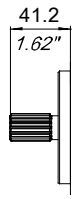
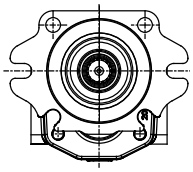
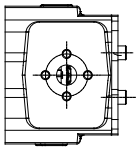
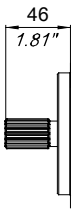
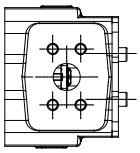
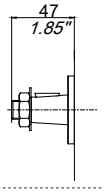
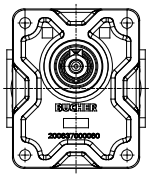
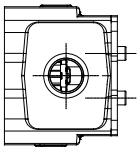
| AP250FP | Displacement | | Pressure P1 | | Pressure P3 | | Min Speed | Max speed** |
|---|---|---|---|---|---|---|---|---|
| Size | $cm^3/rev$ | Cu.In.P.R. | bar | P.S.I. | bar | P.S.I. | rpm | rpm |
| **26** | 26.4 | 1.611 | 300 | 4350 | 320 | 4640 | 500 | 3500 |
| **33** | 33.2 | 2.026 | 300 | 4350 | 320 | 4640 | 500 | 3500 |
| **40** | 40.5 | 2.471 | 300 | 4350 | 320 | 4640 | 500 | 3500 |
| **45** | 45.3 | 2.764 | 280 | 4060 | 310 | 4500 | 500 | 3500 |
| **54** | 54 | 3.295 | 240 | 3480 | 270 | 3900 | 500 | 3000 |
| **63*** ** | 63.2 | 3.856 | - | - | - | - | - | - |
| **75*** ** | 74.9 | 4.571 | - | - | - | - | - | - |
| **86*** ** | 86.5 | 5.278 | - | - | - | - | - | - |

(**) : The max admitted speed is referred to single pump/single inlet configuration.
In case of multiple pumps with common suction line, a speed reduction must be considered.

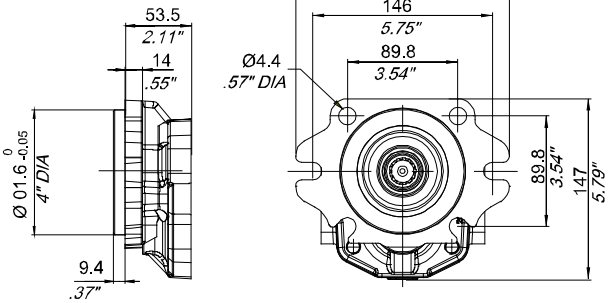
(***) : 63-75-86 displacement under test-phase.

IMPORTANT: the pressure values are referred to unidirectional pumps, single versions only.

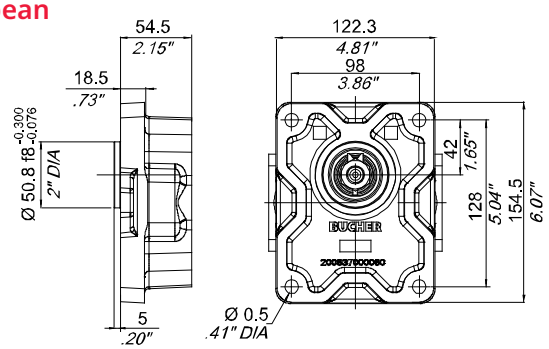
# Standard Configurations

| Drive shaft | | | | Cast iron flange | | | Cast iron body/back cover | | |
|---|---|---|---|---|---|---|---|---|---|
| Type | Model code | Description | Max torque (Tmax) | Type | Model code | Description | Type | Port type | Description |
|  | S3 | 13 teeth External spline SAE J 498-13T 16/32 DP | 270 Nm |  | 8B | SAE-B Two and four bolts (Ø 50.8 mm - 2 inches) with HNBR shaft seals |  | S3 | European 4 bolts flanged |
|  | S5 | 15 teeth external spline SAE J 498-15T 16/32 DP | 460 Nm | | | |  | S5 | SAE FLANGED PORTS J518 (3000 PSI series) |
|  | C8 | Tapered 1:8 | 252 Nm |  | 1P | European rectangular (Ø101.6 mm - 4 inches) with HNBR shaft seals |  | C8 | BSP ports |

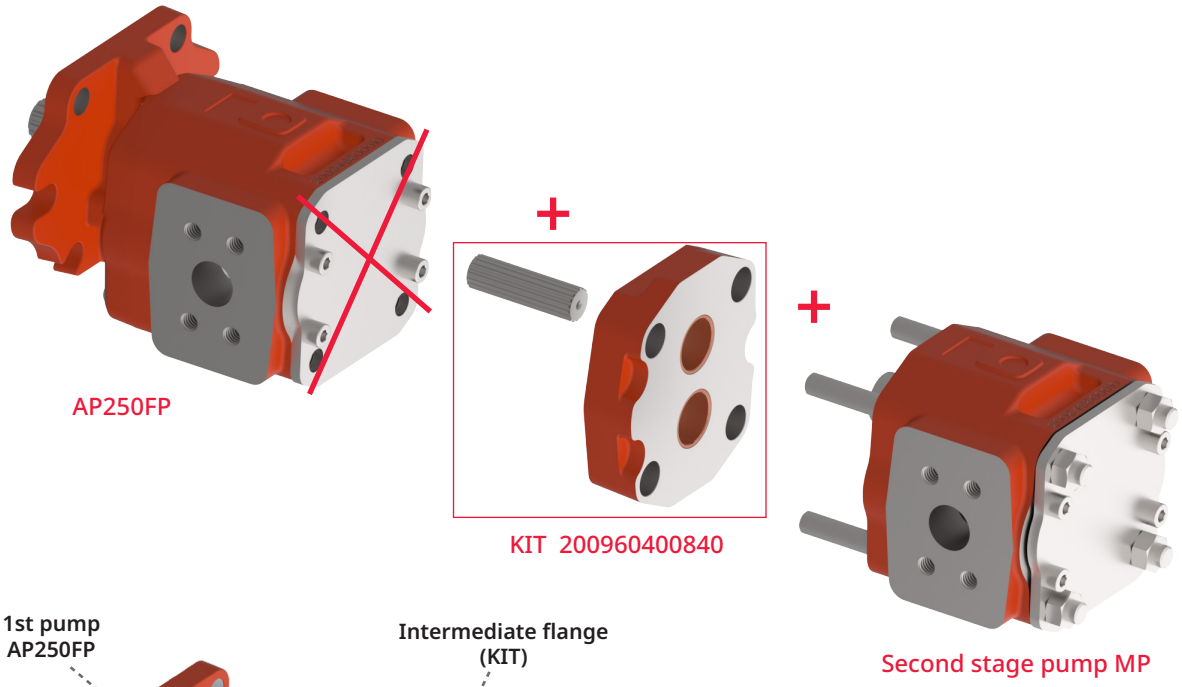
## SAE-B

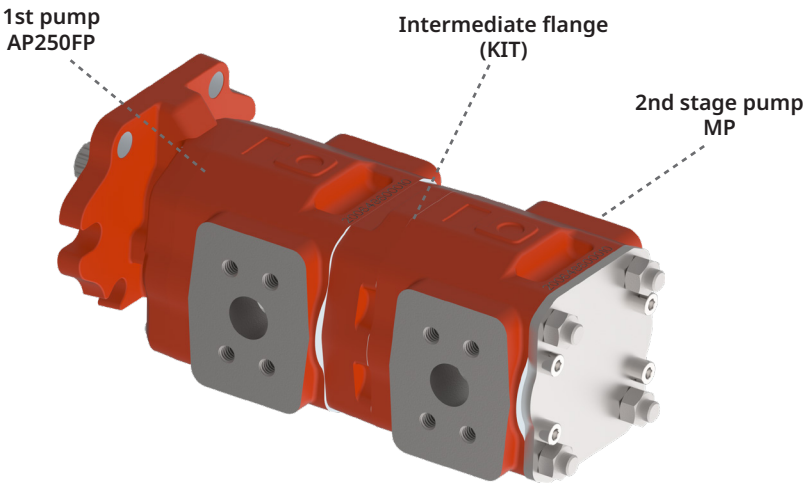



## European



# AP250FP + AP250FP/AP250HP



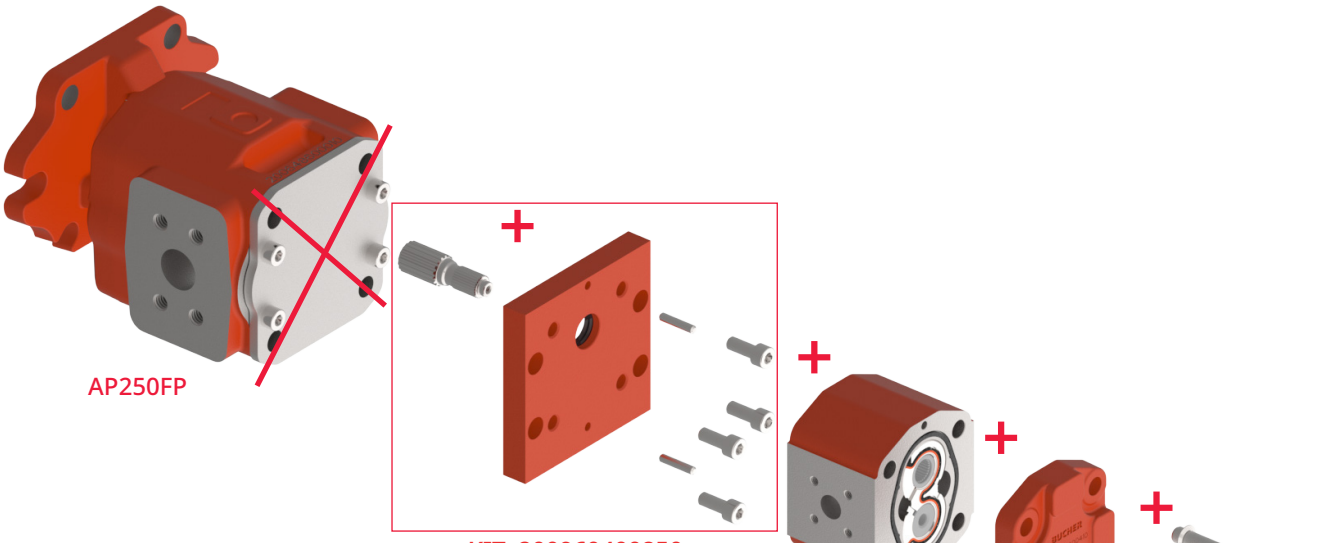



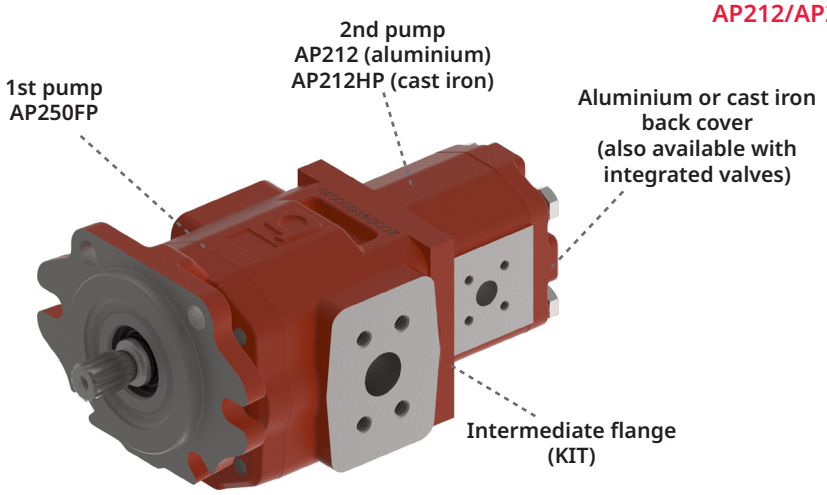

Multiple version: AP250FP+AP250FP (or AP250HP)
Standard version means separated inlet/outlet side ports, without shaft seal between pump stages.
It is necessary to have in stock the second stage pump AP250FP-MP + the Kit p/n 200960400840.
Second stage pump can be obtained from a standard first pump AP250FP or AP250HP pump.
The rear cover of the first pump must be removed (X).

| Displacement cm³/rev | AP250-MP |
|---|---|
| 26 | • |
| 33 | • |
| 40 | • |
| 45 | • |
| 54 | • |
| 63*** | - |
| 75*** | - |
| 86*** | - |

(***) : 63-75-86
displacement under test-phase

# AP250FP + AP212/AP212HP




Multiple version: AP250FP+AP212-MPS (or AP212HP-MPS)
It is necessary to have in stock the AP212-MPS stage, the rear cover, the Kit p/n 200960400850 and 4x bolts.
The length of the bolts depends on the pump displacement and type of rear cover.
The rear cover of the first pump must be removed (X)

| Displacement cm³/rev | AP212 | AP212HP |
|---|---|---|
| 4,5 | • | |
| 6,5 | • | |
| 8,5 | • | |
| 11 | • | |
| 15 | • | • |
| 19 | • | • |
| 22 | • | • |
| 26 | • | • |

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