Imo® Pump

CIRCOR

CIG® Crescent Internal Gear Pumps

>> A pump with features that you've been looking for

No matter what your market, no matter what industry you serve, no matter where you are in the world, CIRCOR provides pumping solutions that are engineered, manufactured, installed, serviced and supported to make sure your specific requirements are met.

The Imo CIG pump line is a family of rugged, reliable, high pressure pumps with silent, ripple-free performance. Longer life, lower pressure ripple, lower contamination sensitivity and maximum energy savings result in the highest "Total Savings of Ownership" across the entire life-cycle of your pumping equipment solution.

The pump is only part of your total fluid transport solution that helps meet the needs of your demanding market. With CIRCOR, you also get deep expertise that ensures even your most critical applications are handled efficiently and effectively with short-term / long-term results that go straight to your bottom line.

The CIG pump design combines the best features of a variety of technologies in one single, efficient unit:

- Simple design as in conventional gear pumps
- High pressure capability as in piston pumps
- Low viscosity operational capability as in centrifugal pumps
- Low noise levels and ripple free flow as in screw pumps

What do low operating noise levels mean to you?

- No acoustic enclosures required
- No remote location of the pump
- No lengthy runs of piping

>> CIG pump performance is field proven with thousands of operating units installed worldwide.

>> Crescent Internal Gear (CIG) Pumps

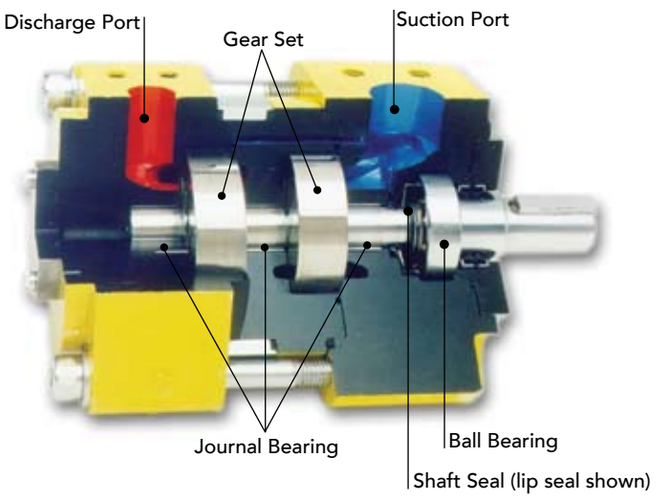
Unique design principles of the CIG pump

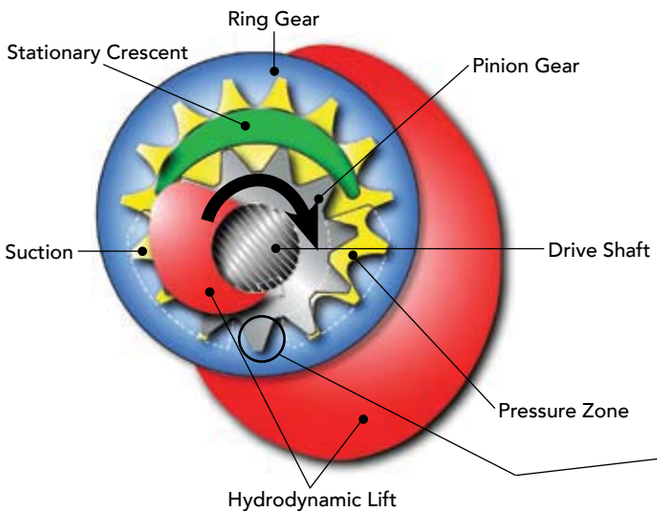
The success of the CIG series pump lies in the fundamental design principle of using hydrodynamic lift to separate all moving contact areas. This internal gear design does not use any axial or radial compensation, virtually eliminating contamination caused by axially loaded side plates or radial thrust shoe designs. The only loaded parts are the sleeve bearings of the drive shaft and the housing surrounding the outer ring gear, which also acts as a sleeve bearing.

Hydrodynamic lift (fluid film support) is created through the friction of the fluid media. This is formed between the shaft bushing and the shaft and also between the ring-gear outside diameter and gear-housing inside diameter. The hydrodynamic lift prevents metal-to-metal contact between the stationary and rotating components. Therefore there is no metal contact or wear. The ring-gear and shaft float on a film of the fluid being pumped.

The patented gear tooth profile compensates for metal-to-metal contact of the gear teeth. This patented gear tooth profile greatly reduces the Hertzian compression stresses (gear tooth contact loads) on the gear flanks compared to an Involute profile. (See figure below.) Also, the relative velocities in the area of the largest forces on the gear teeth are minimal in relation to the strength of the material.

CIG pumps are commonly used for lubrication, high-pressure fuel and hydraulic applications in mobile or stationary environments. It is capable of handling a broad range of fluids with low or high viscosities at flow rates from 1 to 115 GPM (3.8 to 435 liters per minute) in a single pump.





>> Real World Benefits

Low Pressure Ripple
Typically less than 1% peak-to-peak at maximum pressure performance.

Long Life
Due to the patented gear tooth profile and its low Hertzian compression stresses during the meshing phase of the gears, plus the incorporation of the hydrodynamic principle.

Reliability
Excellent resistance to flow degradation when compared to most other pump designs. Durable materials, plus design simplicity, provide outstanding durability.

Low Noise
Typically less than 68 db(A) for most applications. The patented gear tooth profile reduces trapped fluid and backlash in the gears reducing pressure pulsations, keeping airborne noise to a minimum.

Wide Speed Range
Able to operate at high speed without a suction boost, while delivering excellent suction lift characteristics.

Modular Design
Space-saving single-, double- or triple-pump configurations where each pump shares a common drive shaft requiring only one driver.

Wide Application Range
Able to handle fluids with viscosities as low as 0.5 cSt and pressures up to 5000 PSI (345 BAR).

>> Keeping pulp and paper mills and chemical processing plants operating at peak performance all over the world.

Materials of Construction

Mounting Flange:	Ductile Iron (nitride hardening optional)
Gear Housing(s):	Ductile Iron (nitride hardening optional)
Rear Cover:	Aluminum (steel optional)
Seal Housing:	Aluminum (steel optional)
Ring Gear:	Pearlitic Gray Iron (nitride hardening optional)
Pinion Gear:	Alloy Steel (nitride hardened)
Shaft:	Alloy Steel (nitride hardened)
Pump Barrel:	Steel (multi-stage pumps only)
O-rings:	Fluorocarbon
Shaft Seals:	Teflon inner / Fluorocarbon outer lip type (mechanical seal optional)
Sleeve Bearings:	Metal-Polymer composite

Design Characteristics:

Flow Range:	1 to 115 usgpm
Fluid Viscosity:	.5cSt minimum
Inlet Pressure:	7psig (options available to allow 100+psig)
Differential Pressure:	To 5000psig
Temperature:	180˚F (options to allow 250˚F+)
Speed:	To 4500rpm (dependent on Frame size, inlet pressure and fluid viscosity)

Perfectly suited to a wide variety of challenging applications, including:

- Hydraulic power
- Fatigue test equipment
- Marine hydraulics
- Liquid fuel injection
- Fuel component test equipment

>> Products and Applications

PUMP SERIES	APPLICATIONS				QUICK REFERENCE GUIDE	
	FUEL	LUBE	CRUDE OIL	HYDRAULIC	APPROXIMATE FLOW RANGE (USGPM)	MAXIMUM DISCHARGE PRESSURE (PSIG)
CIG-2	●	●	●	●	1-6	5000
CIG-3	●	●	●	●	2-14	5000
CIG-4	●	●	●	●	6-28	5000
CIG-5	●	●	●	●	14-25	5000
CIG-6	●	●	●	●	30-50	5000
CIG-8	●	●	●	●	60-115	5000

TYPICAL CIG PERFORMANCE (USGPM)

Pump Model	@ 140ssu, 2000 psi, 1750 rpm	@ 140ssu, 2000 psi, 3500 rpm	@ 1.0 cSt, 250 psi, 1750 rpm	@ 1.0 cSt, 500 psi, 3500 rpm
22005	1.1	3.5	1.1	2.6
22006	1.5	4.4	1.5	3.5
22008	1.9	5.6	2.1	4.7
32010	2.4	7.1	2.8	6.2
32012	3	8.8	3.8	8.2
32016	4.1	11.3	5	10.6
42020	6.2	15.7	7.1	14.9
42025	8.1	19.7	9.1	18.9
42032	11	25.9	12.1	25
52040	14.1	-	15.1	-
52050	18.2	-	19.9	-
52063	24.3	-	25.5	-
62080	30.4	-	31.3	-
62100	39.2	-	40.3	-
62125	49.4	-	50.5	-
82160	63.5	-	65.5	-
82200	79.9	-	82.1	-
82250	100.5	-	105.1	-

1. Not to be used for pump selection.
2. Typical performance for single stage CIG pumps.
3. Pumps are suitable to operate to higher pressures.
4. For specific pump performance contact your local Colfax representative.

>> IMO Crescent Internal Gear Pumps: Leading Technology, Global Capacity

You may know CIRCOR best by our strong legacy brands that include Imo, Imo AB and Allweiler. We serve customers just like you at facilities, manufacturing sites, and distribution centers throughout the Americas, Europe, Africa, the Middle-East and Asia Pacic.
Our Global network of critical fluid handling technologies, solutions, services and support are unmatched in the industries that we serve. The CIRCOR team in each of these regions understand the challenges you face, respects the high stakes of mission critical equipment and stands ready to deliver with the fluid handling solutions you need.

When precision is mandatory and failure not an option, the most trusted names in critical fluid handling is CIRCOR.

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