

# Product Technical Manual

PRX-CNG



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# Section A- Product Profile

## Product Description

The PRX-CNG is an upgrade program targeting the now obsolete Worthington CNG pumps. Using the 3196 i-FRAME ANSI pump model, ITT Goulds Pumps has developed a replacement pump to fit the CNG nozzle location. Current availability is limited to the 3CNG104, 4CNG104 and 6CNG104, however more sizes may become available after feasibility evaluation. The program currently consists of CD4M wetted components but may be expandable to Alloy 20 upon request.

## Stocking Policy

In order to support the lead times required by our customers, most of the components required to build the PRX-CNG are stocked. ProCast will maintain a minimum stock of unique cast components including the casing and foot. A sleeved shaft for the size 6 will also be stocked as this is not a standard 3196 shaft. Future adjustments to the inventory levels at ProCast or the casting vendor will be made based on forecast inputs from sales.

## Delivery

Delivery time as standard is 2-4 weeks for stocked items and 9-11 weeks for non-stocked subject to acceptable purchase order.

## Features and Benefits

- The original Worthington CNG pump is now obsolete, resulting in expensive and difficult to source spare parts.
- Hydraulic coverage meets or exceeds the hydraulic coverage of the existing CNG pumps.
- Shorter lead times for pumps and parts.
- Interchangeability of parts – All parts (with the exception of the casing and shaft\*) are standard 3196 i-FRAME components and are extensively stocked worldwide.
- Re-uses existing motor – no rewiring necessary.
- Re-uses existing baseplate – no concrete or grouting work required.
- The recognised performance and quality of the Goulds 3196 i-FRAME design\*\*

\*Standard 3196 shaft for the 3CNG and 4CNG sizes. Non-standard shaft required for 6CNG size.

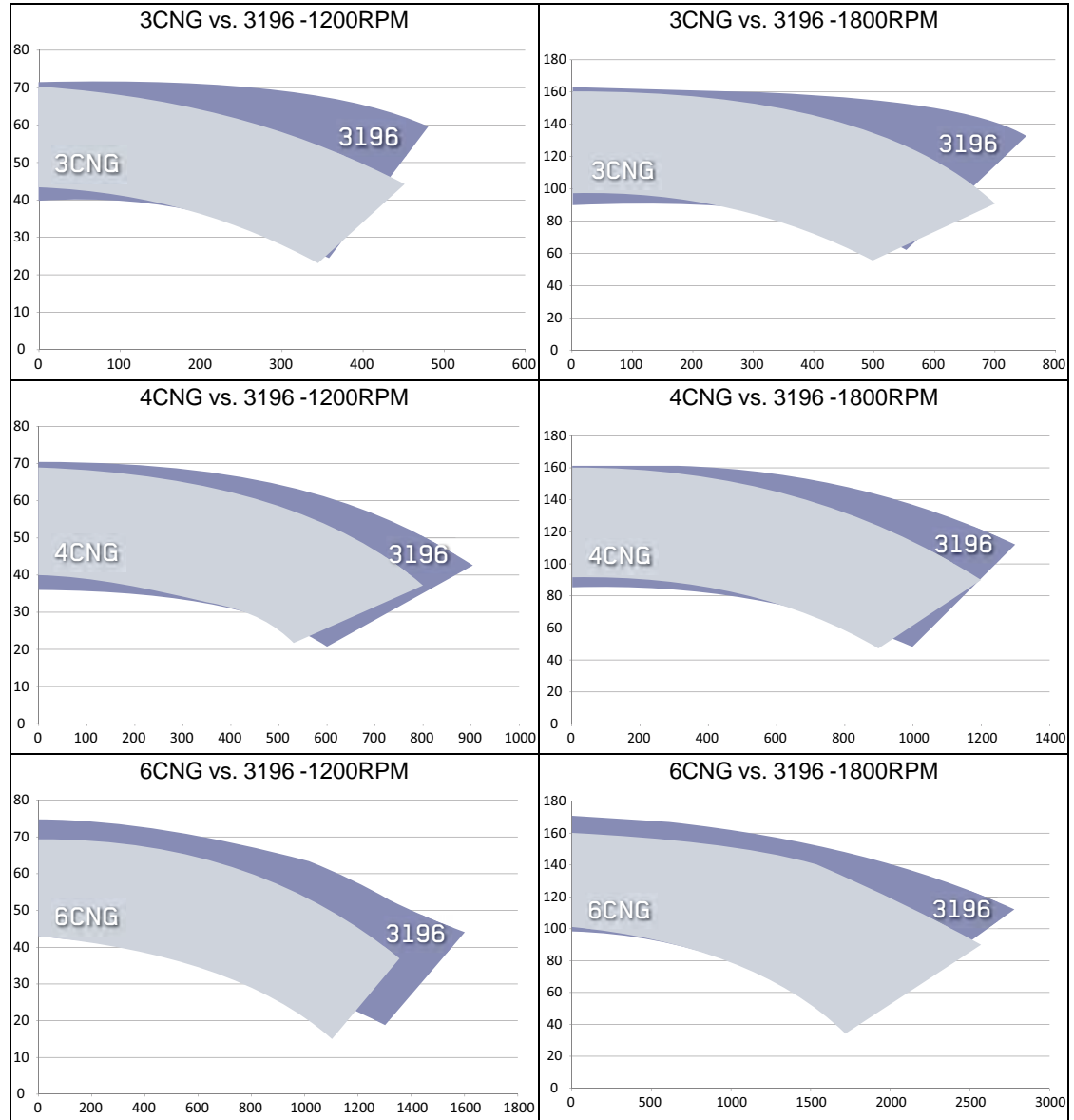
\*\*Refer to 3196 product brochure for features and benefits of the 3196 i-FRAME.

# Section B - Selection Guidelines

## Hydraulic Charts

The PRX-CNG is selected and configured through E-Prism. Currently, there are three pump sizes which meet or exceed the hydraulic coverage of the existing CNG pumps (3CNG104, 4CNG104 and 6CNG104). *Figure 1: Hydraulic Coverage Comparison - CNG (Light Grey vs. 3196 (Dark Grey)* (page 3) gives a comparison between the new PRX-CNG 3196 hydraulic performance and the equivalent CNG frame sizes for 2 pole and 4 pole speeds.

**Figure 1: Hydraulic Coverage Comparison - CNG (Light Grey vs. 3196 (Dark Grey)**



**Table 1: Table showing the equivalent PRX-CNG 3196 sizes against CNG sizes.**

CNG Frame Size	PRX-CNG 3196 Size
3CNG104	3x4-13
4CNG104	4x6-13
6CNG104	6x6-12

## Power Consideration

Generally, drivers should be sized such that the nameplate horsepower is greater than the power required at rating. Customer preference should dictate whether runout power requirements are to be kept within the motor nameplate horsepower or service factor horsepower. As the PRX-CNG 3196 hydraulic may exceed the runout power of the existing CNG pump the existing motor rating should be reviewed against the pump selection during the tendering stage. Refer to engineering if required.

## Drop-in Caveats

**Table 2: Does PRX-CNG match Worthington CNG dimensions?**

PRX-CNG 3196 Size	Suction nozzle termination and bolting	Discharge nozzle termination and bolting	Pump shaft end position and diameter under coupling	Front and back foot mounting positions
3x4-13	✓	✓	✓	✓
4x6-13	✓	✓	x <sup>[1]</sup>	✓
6x6-12	✓	✓	x <sup>[2]</sup>	✓

[1] – Custom spacer required. Length is dependent on existing motor shaft end.

[2] – Close coupled arrangement

# Section C - Technical Data

## Couplings

The PRX-CNG uses a spacer-type coupling for sizes 3x4-13 and 4x6-13 (4x6-13 requires a custom spacer length). Frame size 6x6-12 is close coupled due to length of the powerend. Therefore, the 6x6-12 requires the motor to be moved in order to remove the back pull out assembly from the pump casing. For spacer type coupling details refer to Pricebook section 761.B2 in ePrism.

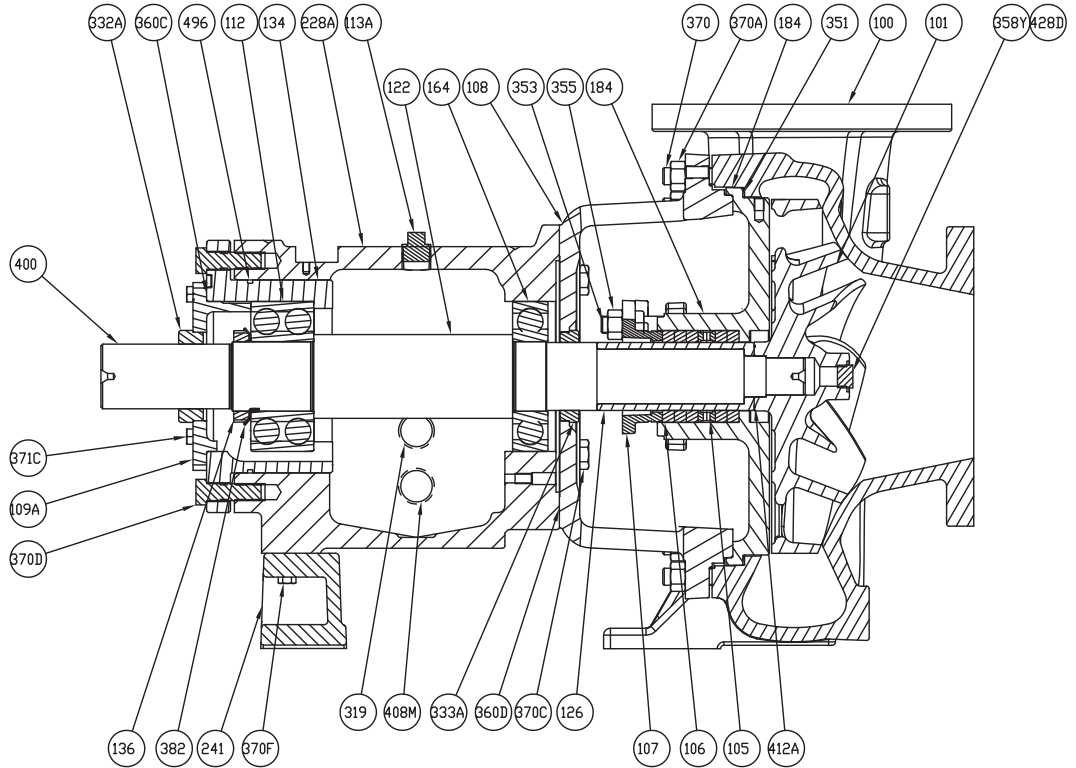
## i-Frame Technical Details

Please refer to ePrism ETM for all other 3196 i-Frame technical details such as cooling requirements, piping plans and seal data.

# Section D - Bill of Materials and Drawings

## Cross Section

The following section contains the generic cross sectional drawing and materials of construction for both the Alloy 20 and CD4MCu versions.



## Bill of Materials

The BOM document numbers are provided in the table below. Each of the BOMs can be found in the Global Vault.

**Table 3: Table showing BOM numbers for each PRX-CNG size**

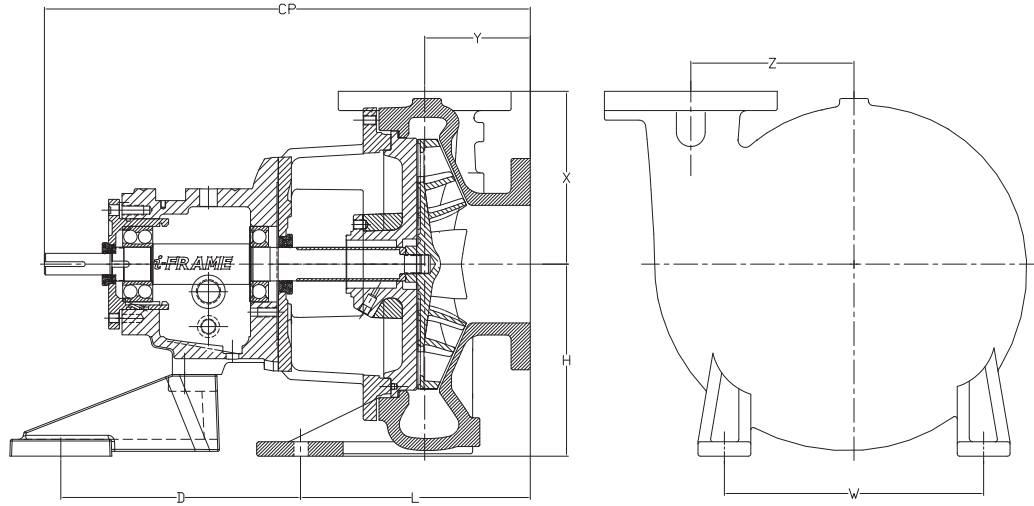
CNG Frame Size	PRX-CNG 3196 Size	BOM Number
3CNG104	3x4-13	K12225A
4CNG104	4x6-13	K12226A
6CNG104	6x6-12	K12227A



## Materials of Construction

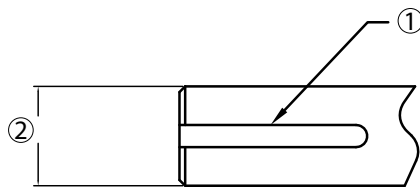
Item Number	Part Name	Material	
		CD4MCu	Alloy 20
100	Casing	CD4MCu	Alloy 20
101	Impeller	CD4MCu	Alloy 20
105	Lantern Ring	Glass-Filled PTFE	
106	Stuffing Box Packing	PTFE Impregnated Fibres	
108	Frame Adapter	Ductile Iron	
112A	Thrust Bearing		
122	Shaft – Less Sleeve (Optional)	316SS	Alloy 20
122	Shaft – With Sleeve	SAE4140	
126	Shaft Sleeve	Alloy 20	
136	Bearing Locknut and Lockwasher	Steel	
168A	Radial Bearing	Single Row Deep Groove	
184	Stuffing Box Cover (Packed Box)	CD4MCu	Alloy 20
184	Seal Chamber (Mechanical Seal)	CD4MCu	Alloy 20
228	Bearing Frame	Cast Iron (Ductile Iron for STi Group)	
250	Gland	Alloy 20	
262	Repeller/Sleeve (Dynamic Seal Optional)	CD4MCu	Alloy 20
264	Gasket, Cover to Adapter	PTFE	
370H	Stud/Nut, Cover to Adapter	304SS	
319	Oil Sight Glass	Glass/Steel	
332A	INPRO VB-XX-D Labyrinth Oil Seal (Out-board)	Stainless Steel/Bronze	
333A	INPRO VB-XX-D Labyrinth Oil Seal (In-board)	Stainless Steel/Bronze	
351	Casing Gasket	Aramid Fiber with EPDM Rubber	
358	Casing Drain Plug (Optional)	Alloy 20	
360F	Gasket, Frame to Adapter	Buna	
360C	Gasket, Bearing End Cover	Cellulose Fibre with Binder	
370	Cap Screw, Adapter to Casing	Steel	
412A	O-ring, Impeller	Glass-Filled PTFE	
418	Jacking Bolt	304SS	
444	Backplate (Dynamic Seal Option)	CD4MCu	Alloy 20
469B	Dowel Pin, Frame to Adapter	Steel	
496	O-ring, Bearing Housing	Buna Rubber	
761B	i-ALERT Condition Monitor	Stainless Steel/Nylon 12	

# Outline Drawing



**Table 4: CNG Drop in replacement dimensions**

Pump Size	Pump to Replace	Suction Size	Discharge Size	CP	D	H	L	W	X	Y	Z
3x4-13	3CNG-104	4	3	23.875	10.410	9.000	9.880	10.500	8.750	4.375	7.500
4x6-13	4CNG-104	6	4	25.000	12.500	10.000	11.938	13.500	9.000	5.500	8.500
6x6-12	6CNG	6	6	32.063	12.500	10.000	12.250	13.500	9.000	6.313	8.750



- 1. Keyway
- 2. Shaft

**Figure 2: Shaft end details**

**Table 5: CNG drop in replacement dimensions**

Pump Size	Pump to Replace	Shaft Size	Keyway
3x4-13	3-CNG-104	1.125	0.25x0.131
4x6-13	4-CNG-104	1.125	0.25x0.131
6x6-12	6-CNG-104	2.375	0.625X0.317



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