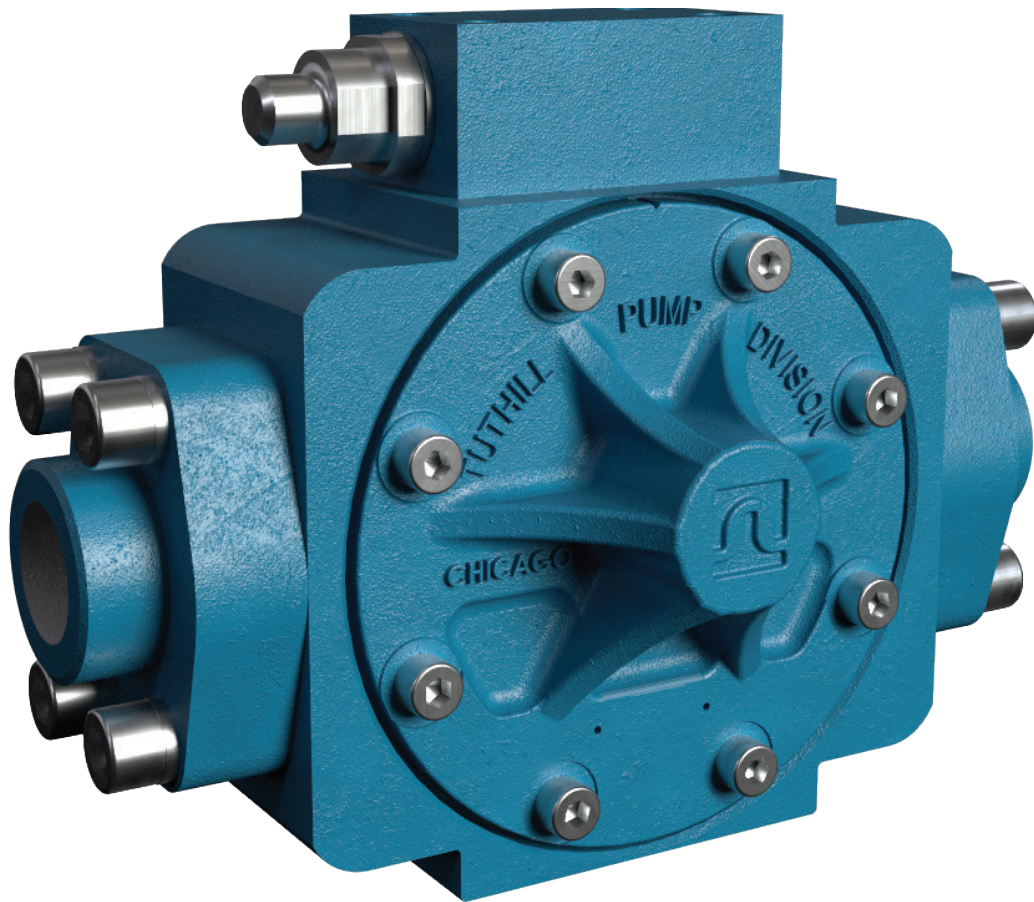


# LUBETECH

## 1000 SERIES PUMPS

ENGINEERING DATA PACK



## TABLE OF CONTENTS

Product Overview Page.....	3
Model Numbering System.....	4
1010 Pump Motor Assembly.....	5
1012 / 1014 Pump Motor Assembly.....	6
1015 / 1018 Pump Motor Assembly.....	7
1020 / 1022 Pump Motor Assembly.....	8
1024 Pump Motor Assembly.....	9
Individual Material Temperature Limits .....	10
Materials of Construction.....	11
NPSH Data.....	11
Noise Levels .....	12
Regulatory Compliance Information .....	13



## 1000 SERIES PRODUCT OVERVIEW PAGE

- Positive Displacement Internal Rotary Gear Design
- Cast Iron Construction with 180° Ports
- Five Pump Body Sizes - Flows Ranging from 4 L/Min to 600 L/Min
- Typical Viscosity Range is 4 - 10,000 cSt
- SSU Temperatures to 190°C

### 1010 FEATURES

180° Ports, Bolt on Flange Configuration  
 Spring Loaded Mechanical Seal  
 Inlet Pressure to 1.7 Bar / 25 PSI Discharge Pressure to  
 6.9 Bar / 100 PSI  
 Maximum Differential Pressure to 6.9 Bar / 100 PSI

### OPTIONS

Internal Relief Valve  
 Outboard Ball Bearing  
 Reversing Feature and SAE Porting  
 Shaft Modification A for Close Coupled Mounting

### 1012 / 1014 FEATURES

180° Ports, Bolt on Flanges or Internal Port Configuration  
 Spring Loaded or Bellows Type Mechanical Seal  
 Inlet Pressure to 1.7 Bar / 25 PSI Discharge Pressure to  
 6.9 Bar / 100 PSI  
 Maximum Differential Pressure to 6.9 Bar / 100 PSI

### OPTIONS

Internal Relief Valve and Outboard Ball Bearing  
 Body Carbon Bush or Ball Bearing  
 Reversing Feature  
 Mechanical Seal Elastomer Options Available, Viton,  
 Neoprene, HNBR, PTFE

### 1015 FEATURES

180° Ports, Bolt on Flanges or Internal Port Configuration  
 Spring Loaded Mechanical Seal  
 Ball Bearing or Carbon Body Bush  
 Inlet Pressure to 6.9 Bar / 100 PSI Discharge Pressure to  
 8.3 Bar / 120 PSI Maximum  
 Differential Pressure to 8.3 Bar / 120 PSI

### OPTIONS

Seal Elastomer – Neoprene, HNBR, Nitrile, PTFE  
 Internal Relief Valve  
 Reversing Feature  
 Adaptor Mounted for Direct Drive  
 Adapter Kit for NEMA C-Face Mounting

### 1017 / 1018 / 1020 / 1022 FEATURES

180° Ports, Bolt on Flange Configuration  
 Balanced Mechanical Seal Capable of Vertical Mounting  
 Double Row Body Ball Bearing or Carbon Body Bush  
 Inlet Pressure to 8.3 Bar / 125 PSI Discharge Pressure to  
 10.3 Bar / 150 PSI  
 Maximum Differential Pressure to 6.9 Bar / 100 PSI

### OPTIONS

Internal / External Relief Valve Outboard Ball Bearing  
 Reversing Feature  
 Mechanical Seal Elastomers – Neoprene, HNBR, Nitrile, PTFE  
 Various Porting Type Flanges Available (butt/socket weld screwed)  
 Tang Shaft Modification A Available

### 1024 FEATURES

180° Ports, Bolt on Flange Configuration  
 Balanced Mechanical Seal Capable of Vertical Mounting  
 Double Row Body Ball Bearing Lockable Shaft Bearing  
 Inlet Pressure to 20.7 Bar / 300 PSI Discharge Pressure to  
 10.3 Bar / 150 PSI  
 Maximum Differential Pressure to 6.9 Bar / 100 PSI

### OPTIONS

Mechanical Seal Elastomers, Neoprene, HNBR, Nitrile, PTFE  
 Various Porting Type Flanges Available (butt/socket weld screwed)  
 Adaptor Mounted for Direct Drive

## 1000 SERIES MODEL NUMBER SYSTEM

POSITION	SERIES		SIZE		PORT SIZE	SHAFT	SEAL	VALVE	IDLER BUSH	BODY BUSH
	1	2	3	4	5	6	7	8	9	11

**POS. 3 & 4 - PUMP SIZE**

1010 = 18 LPM @ 1420 RPM  
 1012 = 28 LPM @ 1420 RPM  
 1014 = 44 LPM @ 1420 RPM  
 1015 = 52 LPM @ 1420 RPM  
 1017 = 107 LPM @ 1420 RPM  
 1020 = 179 LPM @ 1420 RPM  
 1022 = 247 LPM @ 1420 RPM  
 1024 = 618 LPM @ 1420 RPM

**POS. 5 - PORT SIZE**

2 = 3/4" (1012)  
 2 = 1" (1014 & 1015)  
 3 = 1-1/2"  
 4 = 2"  
 5 = 2-1/2"  
 6 = 3", 3-1/2", or 4" BW or 4" Tapped

**POS. 6 - SHAFT TYPE**

A = Modification A Tang  
 S = Standard round with keyway

**POS. 7 - SEAL**

1 = Nitrile single spring  
 3 = Viton driven  
 5 = Neoprene driven  
 6 = Neoprene bellows  
 7 = Viton single spring  
 8 = EPR single spring  
 R = Compressor seal

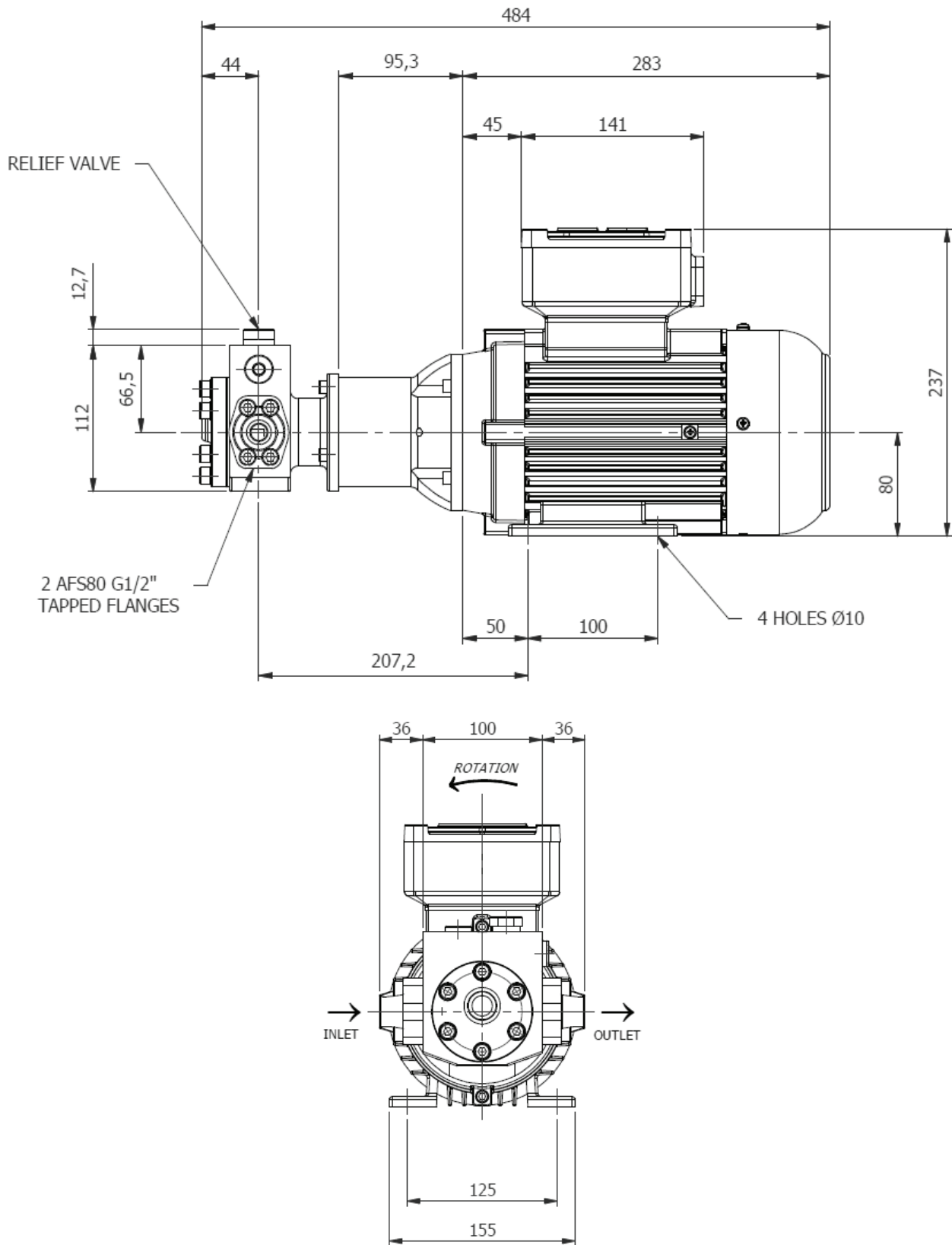
**POS. 8 - RELIEF VALVE**

I = Internal relief  
 E = External relief  
 N = No relief valve

**POS. 9 & 10**

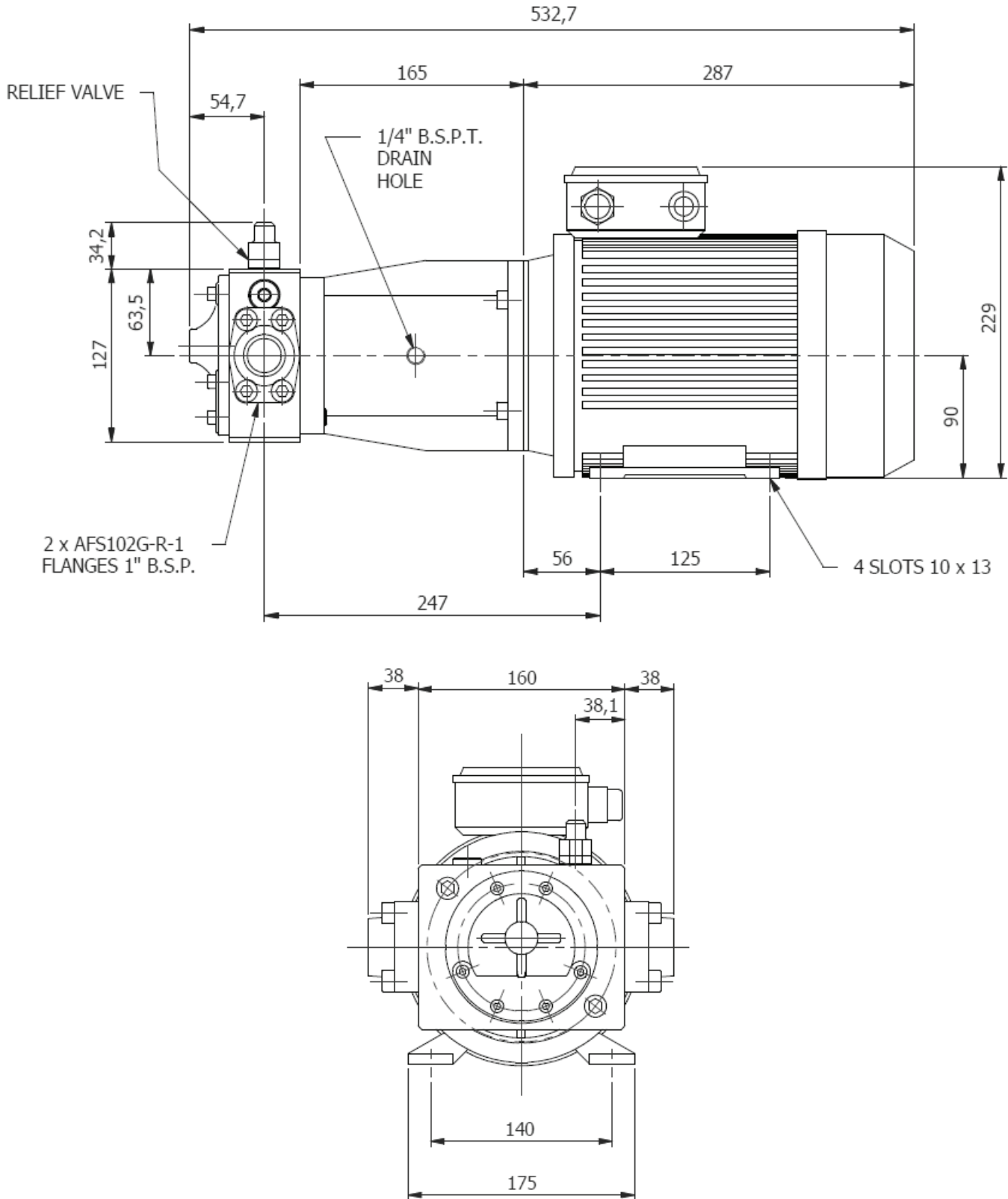
C = Carbon  
 G = Ball

# 1010 PUMP MOTOR ASSEMBLY



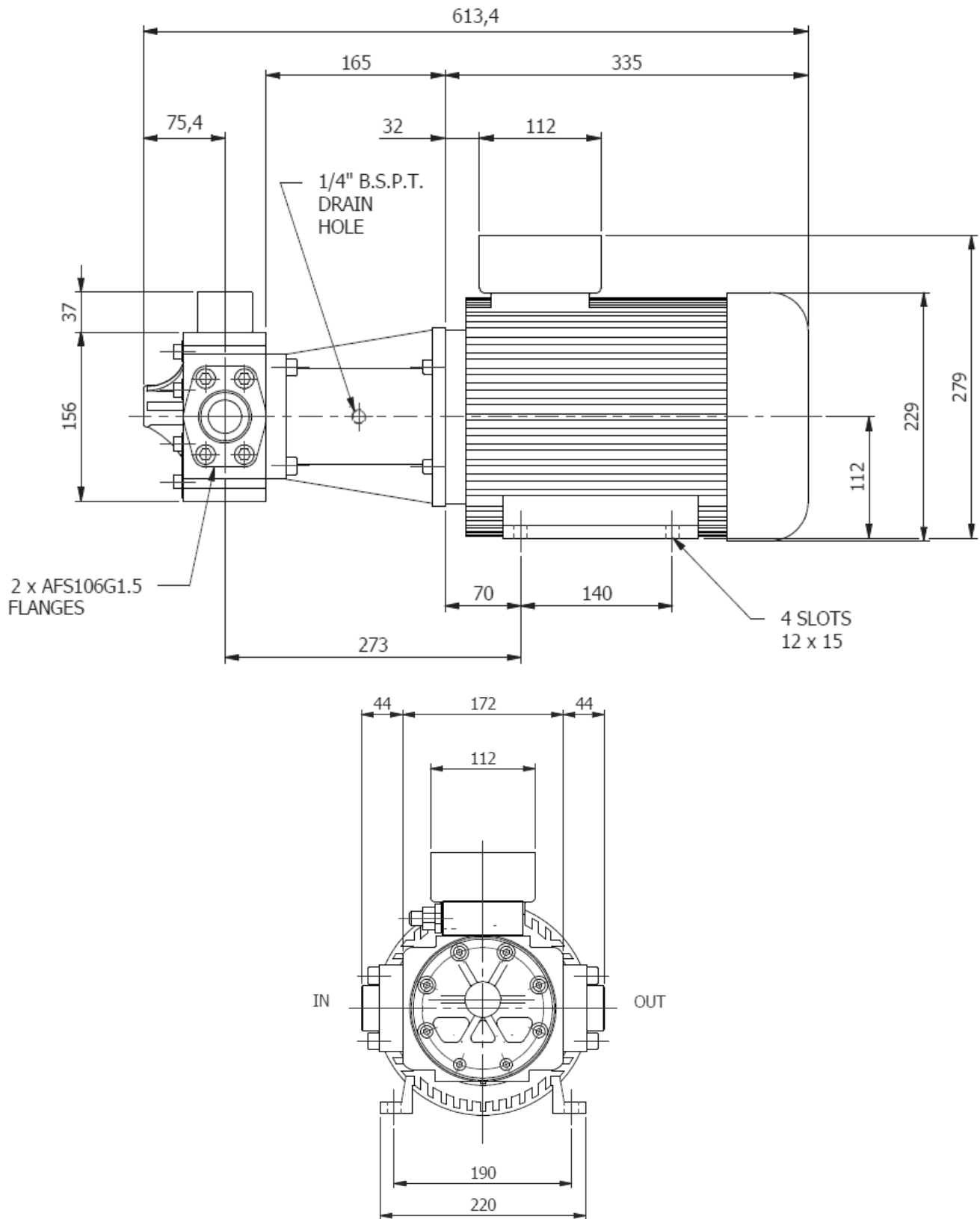
**NOTE:** In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

# 1012/1014 PUMP MOTOR ASSEMBLY



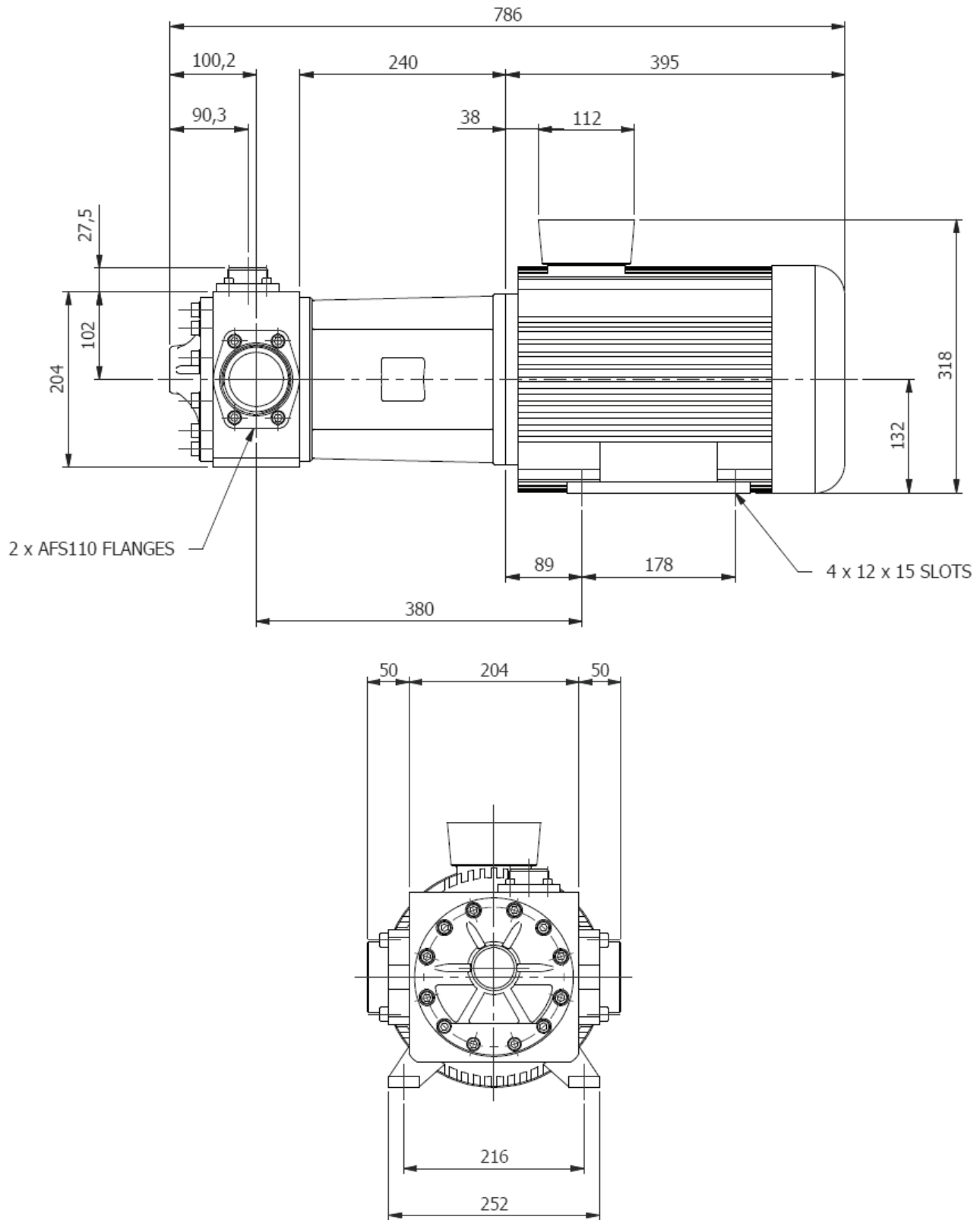
**NOTE:** In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

# 1015-1018 PUMP MOTOR ASSEMBLY



**NOTE:** In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

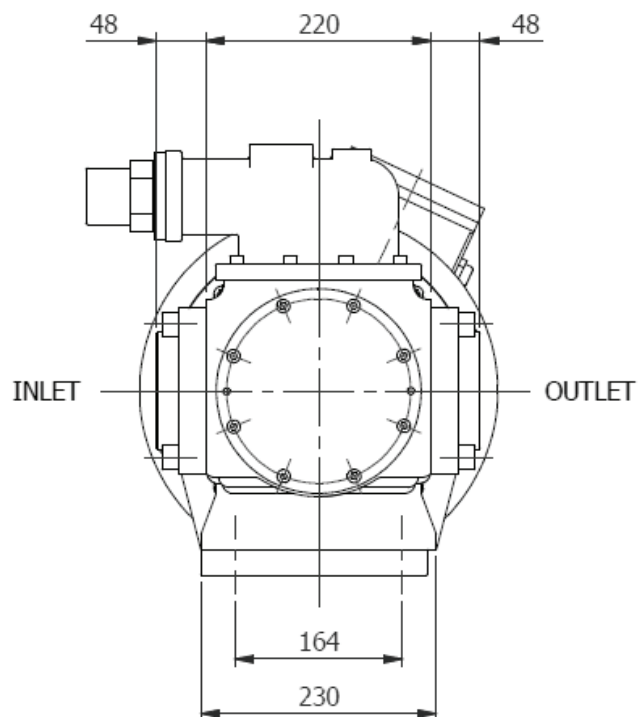
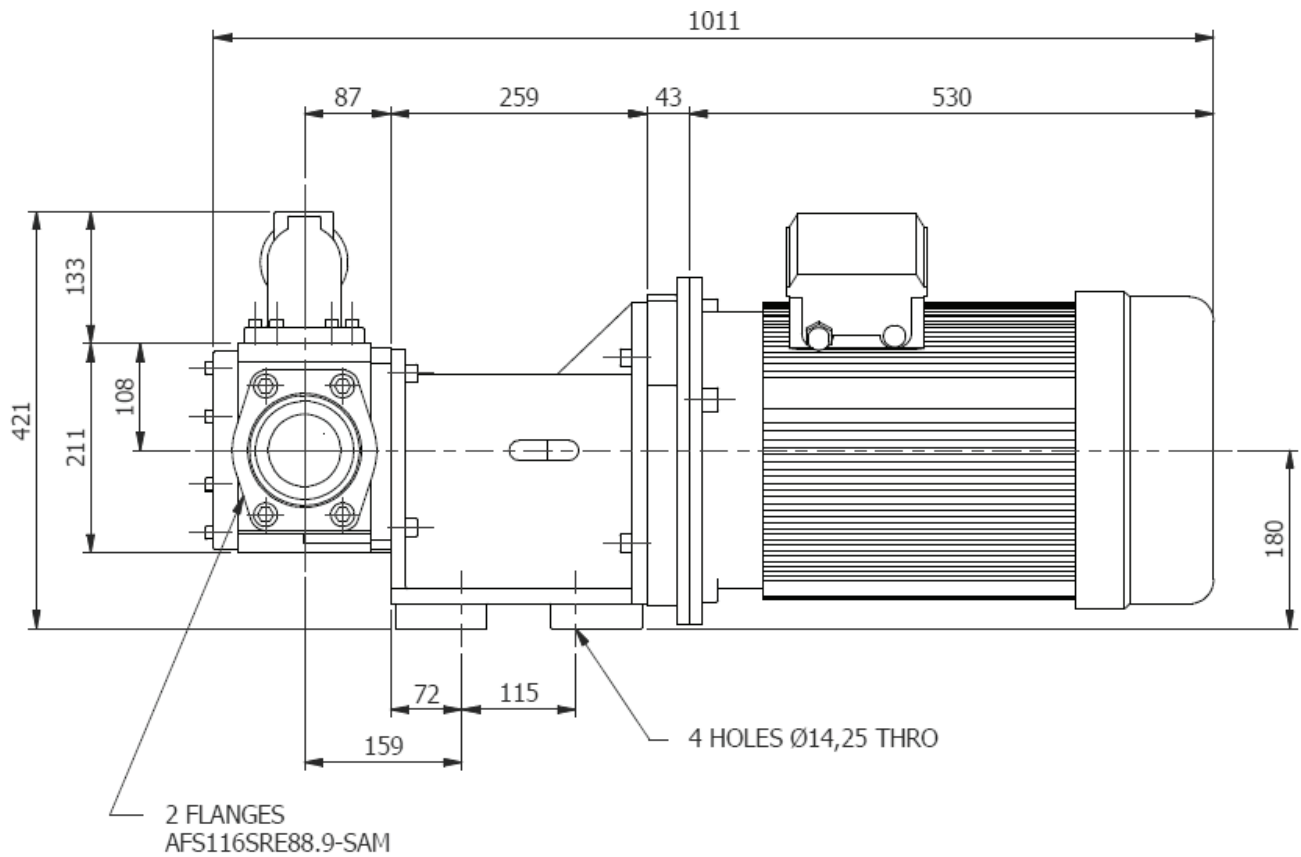
# 1020/1022 PUMP MOTOR ASSEMBLY



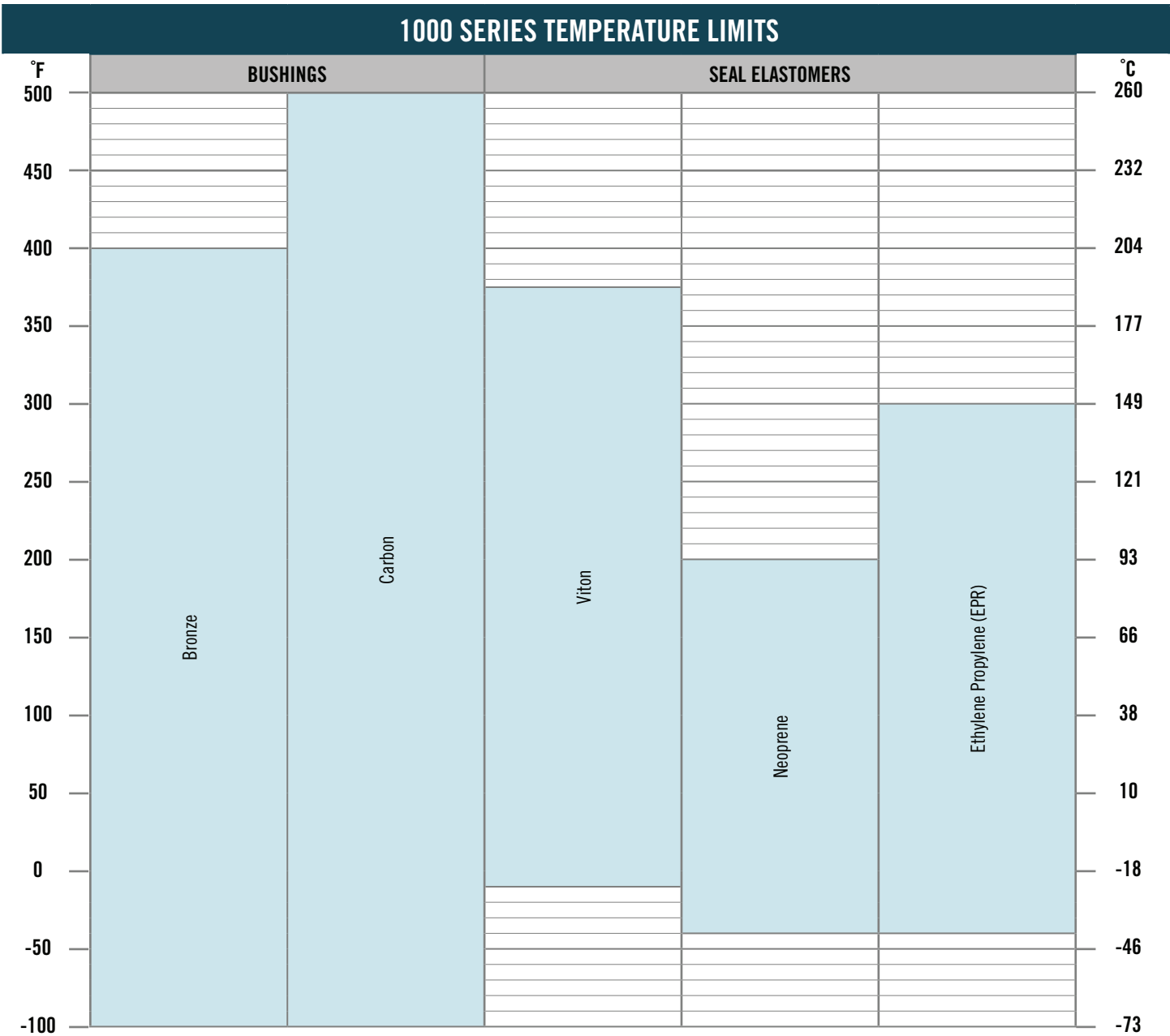
**NOTE:** In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.



# 1024 PUMP MOTOR ASSEMBLY



**NOTE:** In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.



**NOTE:** A pump's performance is dependent on more than just the temperature ranges of the component materials.

## 1000 SERIES MATERIALS OF CONSTRUCTION

PART NAME	MATERIAL	STANDARD	COMMENTS	AVAILABILITY
<b>HOUSING</b>	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
<b>BRACKET</b>	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
<b>BRACKET BUSHING</b>	Carbon			Standard
	Ball Bearing			Optional
<b>COVER</b>	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
<b>ROTOR</b>	Steel	C1137, C1141, ASTM A311	Steel Forging	Standard
<b>IDLER</b>	P/M Steel	FC-0508-P		Standard
<b>IDLER PIN</b>	Steel	C1117	Heat Treated	Standard
<b>IDLER BUSHING</b>	Carbon	Carbon Graphite Resin		Optional
<b>O-RINGS &amp; SEAL</b>	Viton			Standard
	Neoprene			Optional
	HNBR			Optional

## 1000 SERIES NPSH DATA

Pump	NPSH	300 RPM	600 RPM	900 RPM	1200 RPM	1500 RPM	1800 RPM
1010	FT	1.2'	2.0'	2.8'	3.8'	5.1'	6.6'
1012/1014	FT	1.4'	2.4'	3.6'	5.2'	7.1'	9.4'
1015/1017	FT	1.6'	2.7'	4.4'	6.5'	9.1'	12.2'
1020/1022	FT	1.8'	3.0'	5.2'	8.2'	11.9'	16.2'
1024	FT	2.0'	3.3'	6.0'	9.9'	14.8'	20.1'

NPSH Required for Tuthill 1000 Series Pumps 0 - 1000 SSU

## VISCOSITY CORRECTION FACTOR

Viscosity	2500 SSU	5000 SSU	10000 SSU	25000 SSU
Correction Factor	1.3	1.7	2.0	2.7

## 1000 SERIES NOISE LEVELS

PUMP	SPEED (RPM)	FREQUENCY (Hz)	NOISE LEVEL (dB)		
			at 0 bar	at 3.5 bar	at 7.0 bar
1012	960	50	71	71	72
	1200	60	80	80	80
	1440	50	71	73	75
	1800	60	80	80	80
1014	960	50	71	71	72
	1440	50	71	73	75
1015	960	50	72	72	73
	1200	60	76	81	85
	1440	50	72	75	78
	1800	60	79	85	88
1017	960	50	71	71	74
	1200	60	81	85	86
	1440	50	75	78	79
	1800	60	85	88	92
1020	960	50	74	75	76
	1200	60	90	94	96
	1440	50	77	79	80
	1800	60	94	101	103
1022	960	50	71	75	77
	1200	60	86	96	100
	1440	50	80	81	82
	1800	60	94	103	105
1024	960	50	72	77	79
	1200	60	91	94	96
	1440	50	83	85	87
	1800	60	96	102	105

# REGULATORY COMPLIANCE INFORMATION



**ATEX**

The 1000 Series pumps' technical file is lodged in accordance with Article 13(1)(b)(ii) of ATEX Directive 2014/34/EU of 26 February 2014

**THE FOLLOWING STANDARDS WERE USED TO VERIFY CONFORMANCE:**

*2006/42/EC – The Machinery Directive*

*EN 1127-1:2011 – Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology*

*EN ISO 80079-36:2016 – Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements*

*EN ISO 80079-37:2016 – Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Nonelectrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"*



*Tuthill's 1000 Series pumps are UL listed for Power-operated pumps for fuel oil service.*



The 1000 Series pumps comply with the European Directive 2006/42/EC

**THE FOLLOWING STANDARDS WERE USED TO VERIFY CONFORMANCE:**

*EN ISO 12100:2010 – Safety of machinery - General principles for design*

*EN 809:1998+A1:2009 – Pumps and pump units for liquids - Common safety requirements*

*2011/65/EU – The Restriction of Hazardous Substances Directive*

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**MADE IN UK**