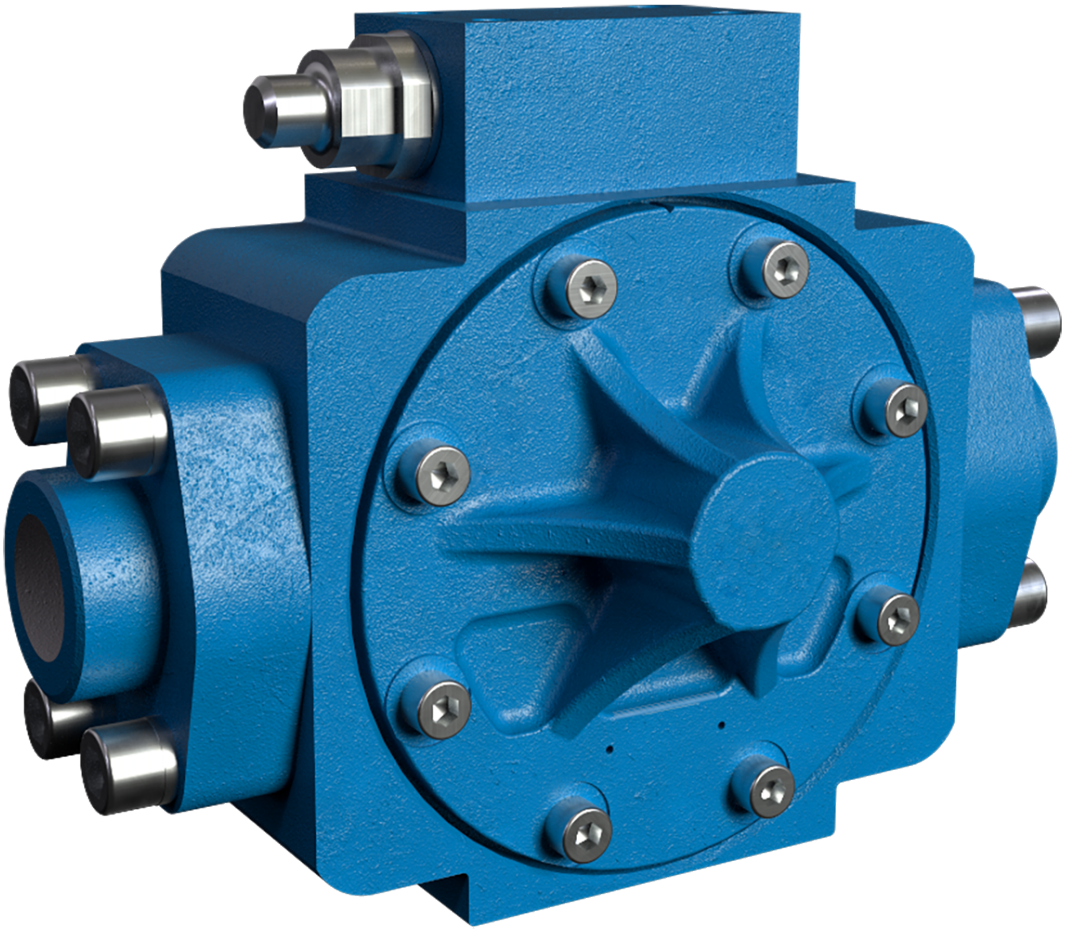
LUBETECH

1000 SERIES PUMPS

ENGINEERING DATA PACK



Ingersoll Rand

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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

	SERIES		SIZE		PORT SIZE	SHAFT	SEAL	VALVE	IDLER BUSH	BODY BUSH
POSITION	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

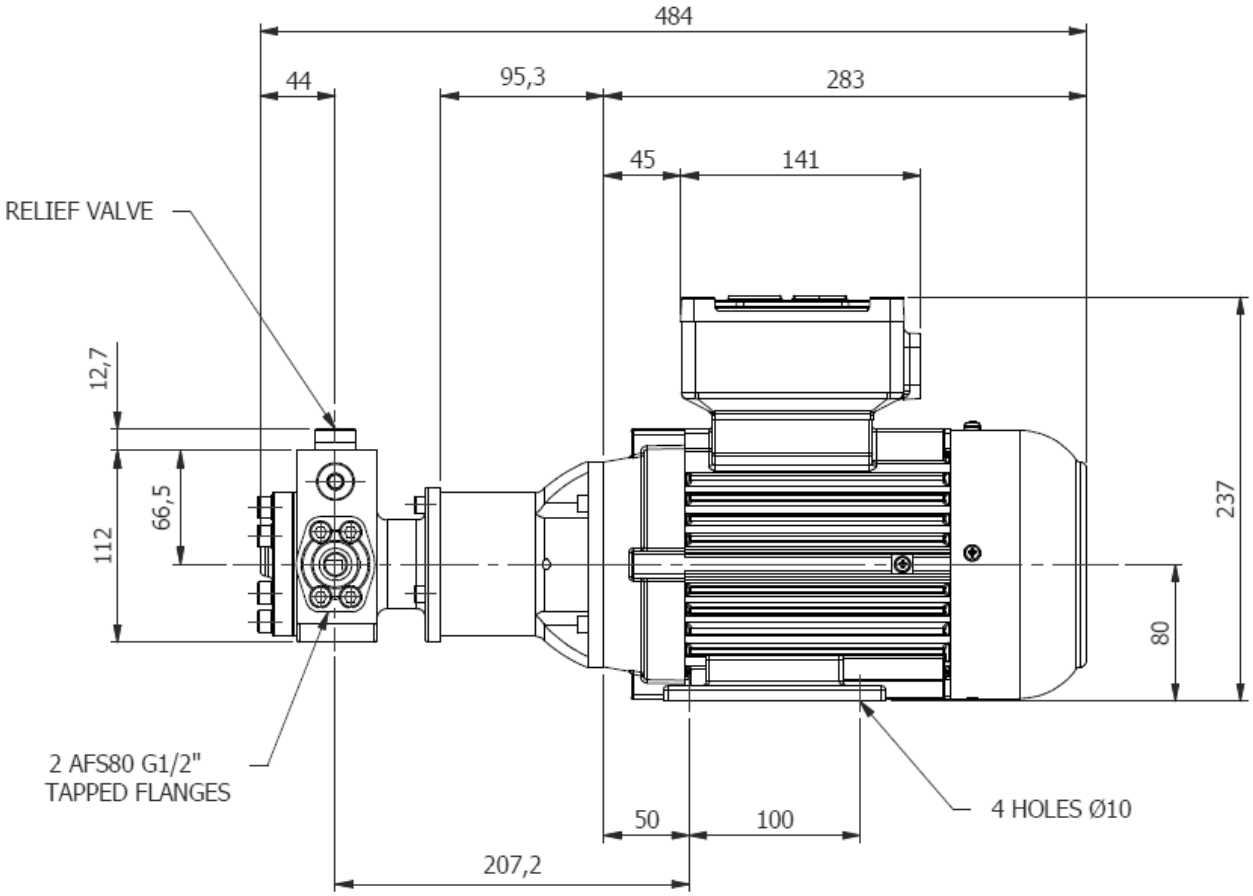
POS. 8 - RELIEF VALVE

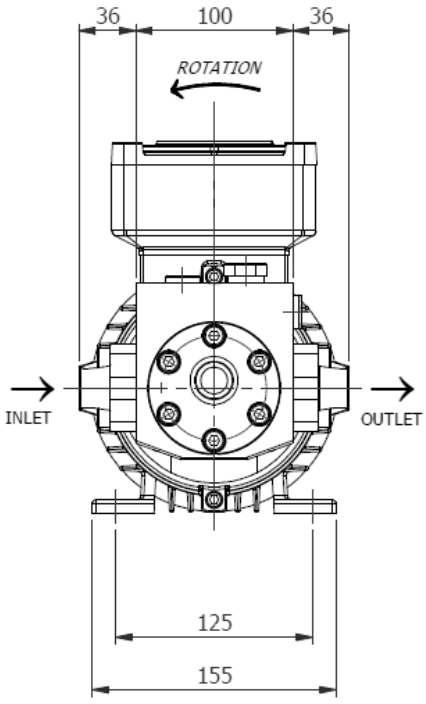
I = Internal relief
E = External relief
N = No relief valve

POS. 9 & 10

C = Carbon
G = Ball

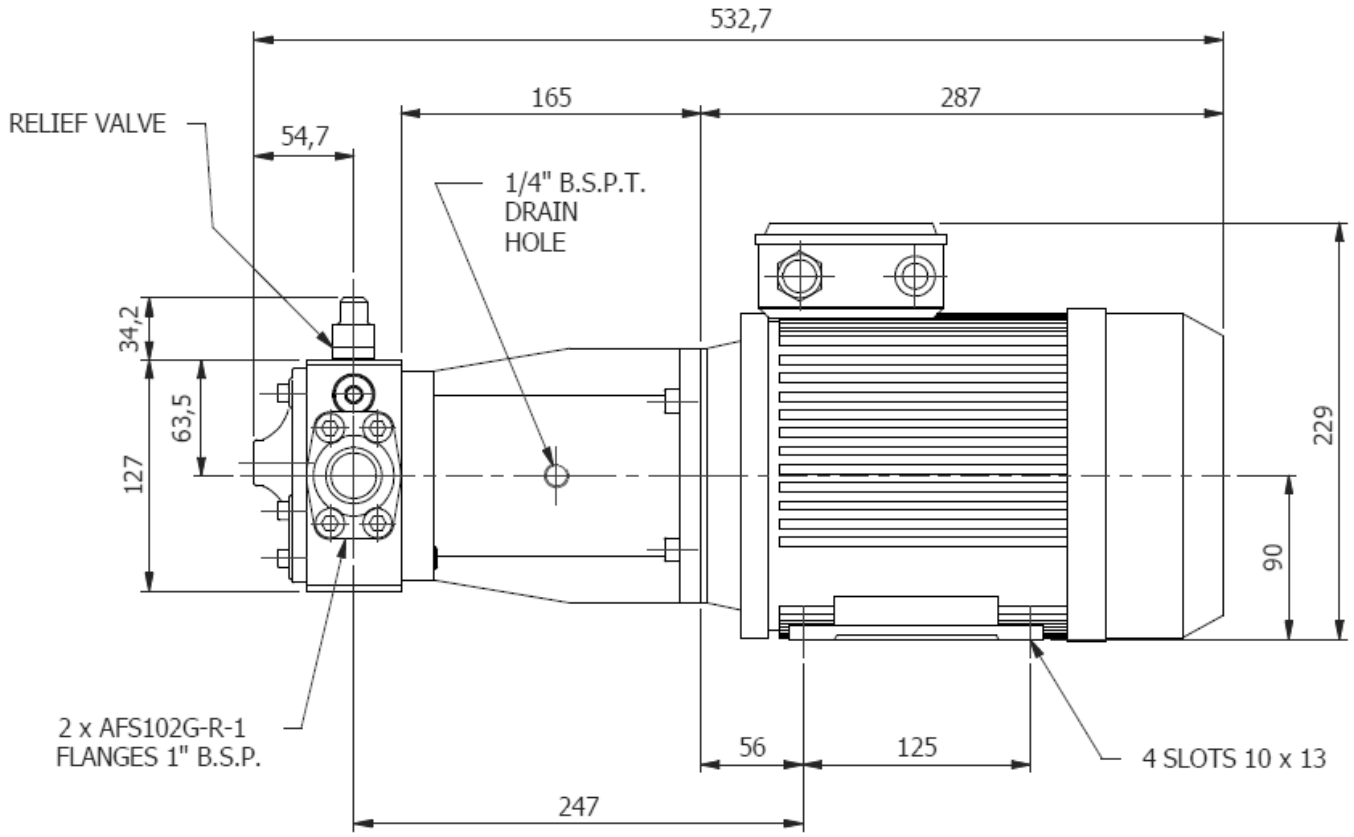
1010 PUMP MOTOR ASSEMBLY

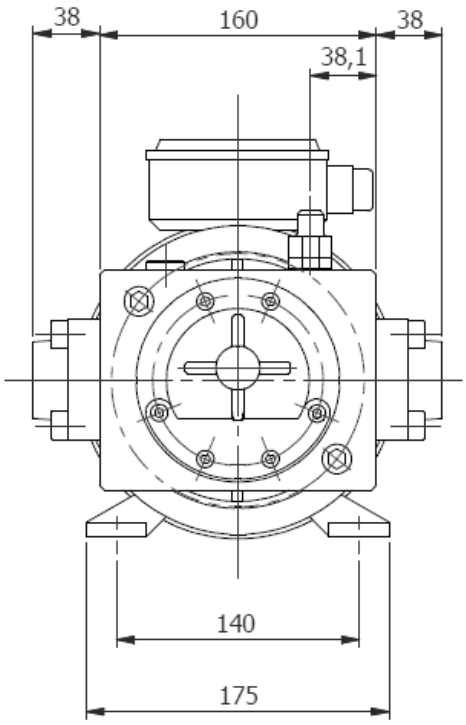




NOTE: In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

1012/1014 PUMP MOTOR ASSEMBLY





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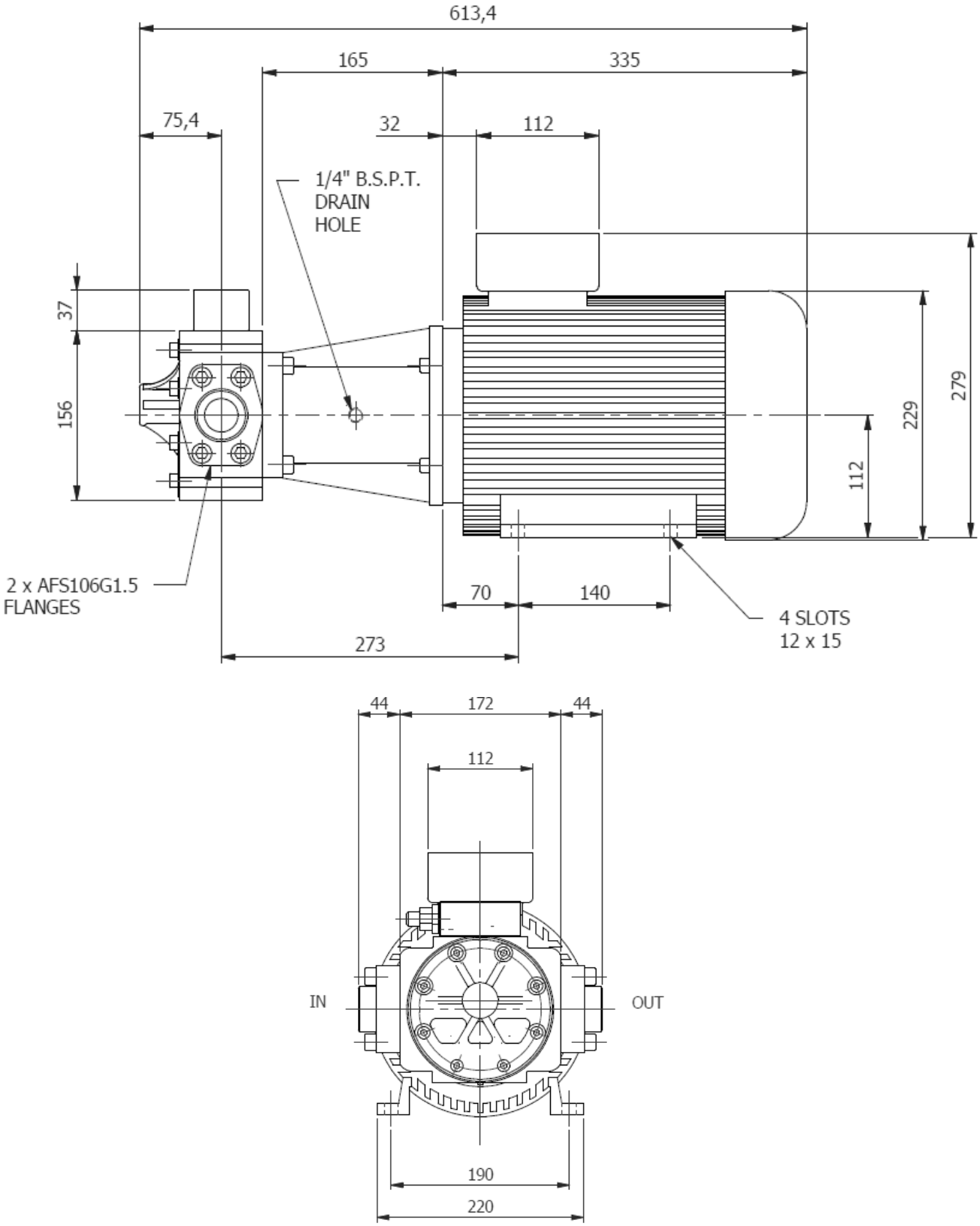
1015-1018 PUMP MOTOR ASSEMBLY



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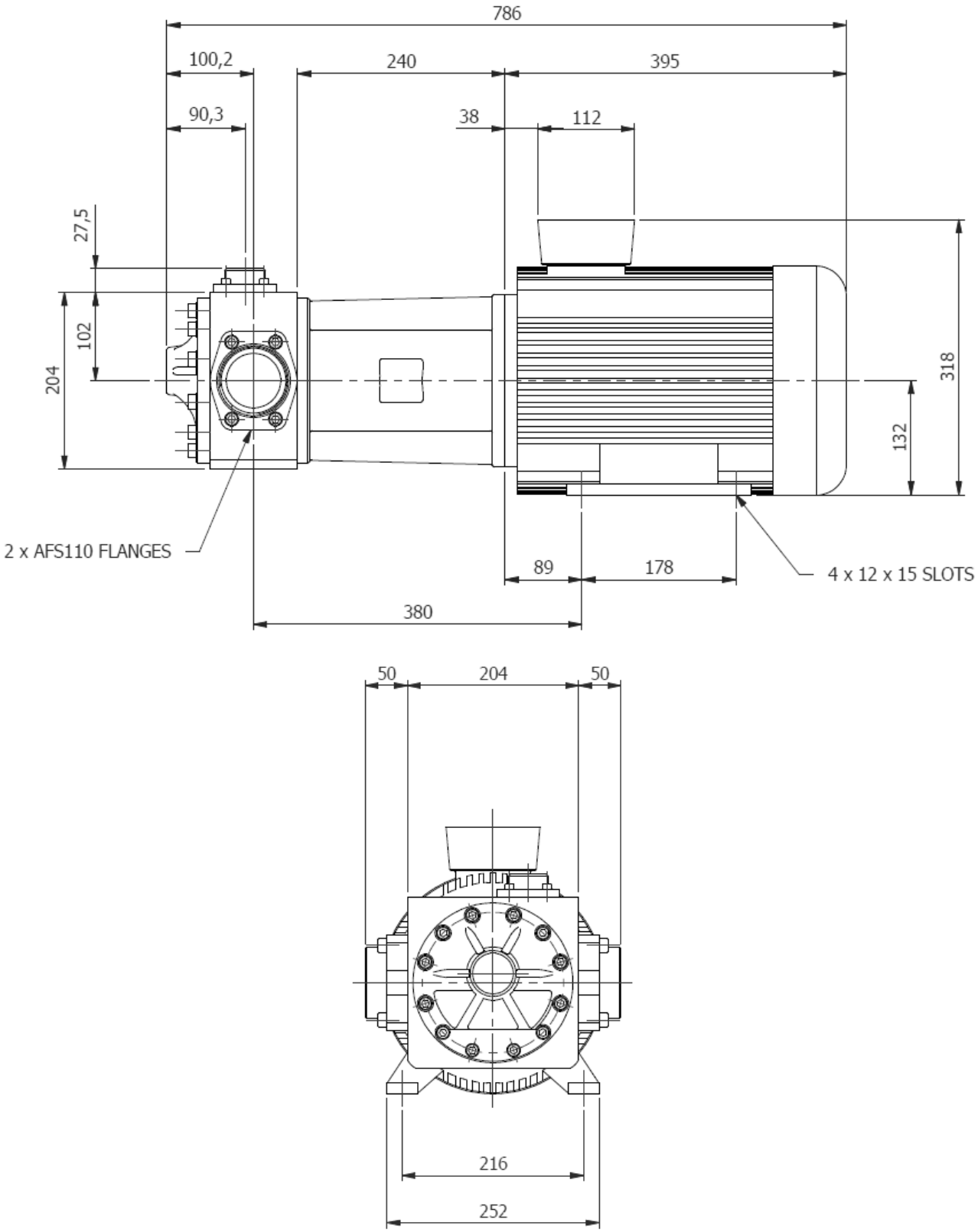
1020/1022 PUMP MOTOR ASSEMBLY



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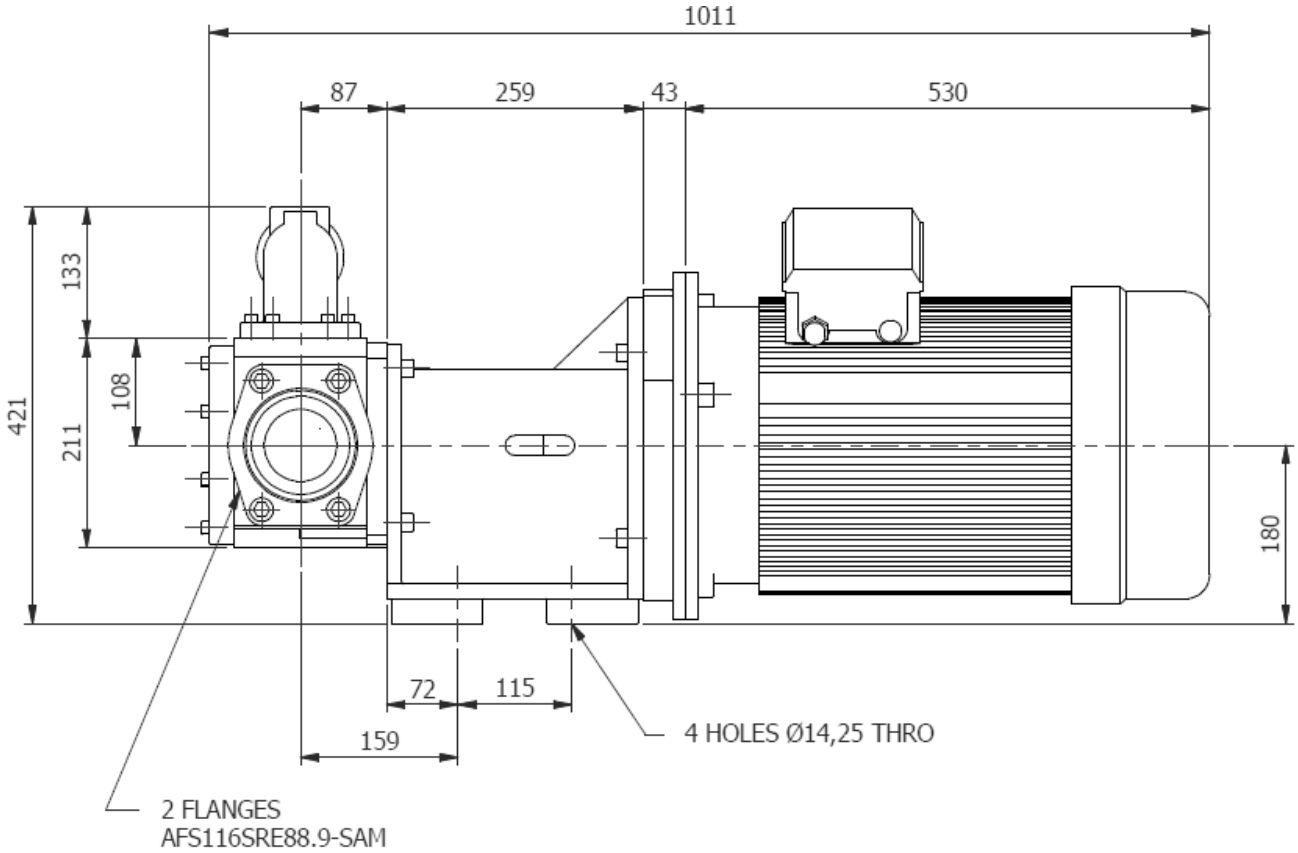
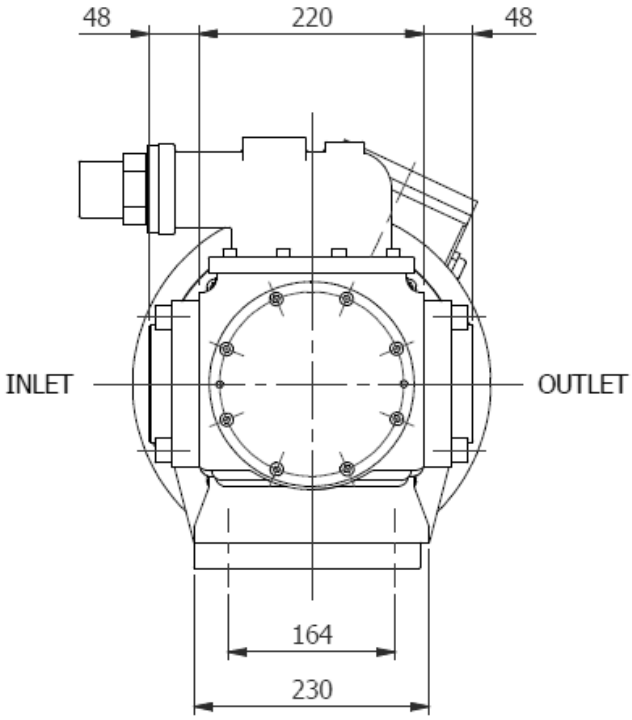
1024 PUMP MOTOR ASSEMBLY





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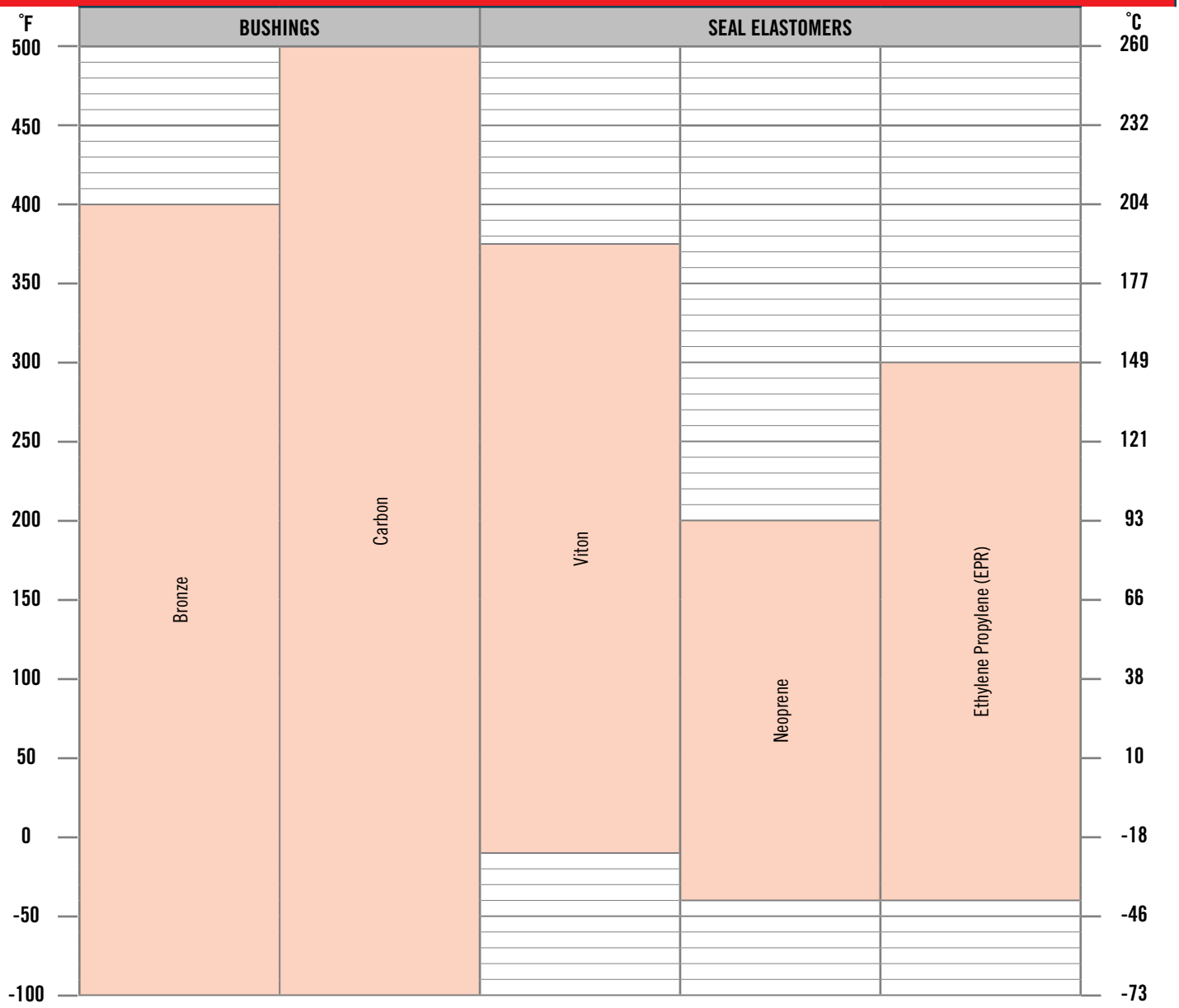
1000 SERIES TEMPERATURE LIMITS



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**
HOUSING	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
BRACKET	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
BRACKET BUSHING	Carbon			Standard
	Ball Bearing			Optional
COVER	Cast Iron	ASTM A48 - 96a	Classes 30, 35, or 40	Standard
ROTOR	Steel	C1137, C1141, ASTM A311	Steel Forging	Standard
IDLER	P/M Steel	FC-0508-P		Standard
IDLER PIN	Steel	C1117	Heat Treated	Standard
IDLER BUSHING	Carbon	Carbon Graphite Resin		Optional
O-RINGS & SEAL	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 Ingersoll Rand 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"

Ingersoll Rand's1000 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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