

ARROW PRODUCTS GUIDE

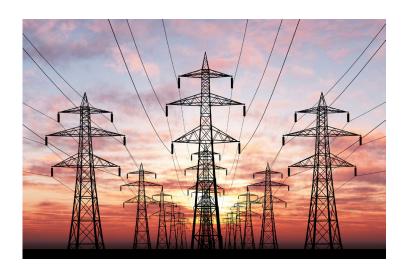
ENGINES AND COMPRESSORS











WHO IS ARROW ENGINE?

Arrow is an OEM market-leading provider of engineered-to-order products, natural gas-powered engines and parts, as well as gas compressors and packages.

Arrow Engine Company was founded in 1955 as Arrow Specialty Company by Jeff Davis in Tulsa, Oklahoma, beginning a tradition of providing premium service and exceptional products to the oil and gas industry as well as other industrial markets throughout the world.

Today, Arrow continues its tradition of focusing on producing the most reliable equipment, parts, and extraordinary customer service in the industry.

Arrow is a part of TriMas Corporation, a diversified global manufacturer and provider of products for customers primarily the consumer products. aerospace and defense. and industrial end markets, with approximately 3,400 dedicated employees in 13 countries. We provide customers with a wide range of innovative and quality product solutions through our market-leading businesses.

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GKP1.1 Gaseous Engine

Configuration	Vertical in-line 2-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	1.1 L (67.1 cubic inches)
Compression ratio	9:1
Bore x stroke	3.4 x 3.7 inches (86 x 94 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	287 lbs. (130 kg)
Length	18.4 inches (46.8 cm)
Width	20.4 inches (51.8 cm)
Height	24.9 inches (63.3 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	8	9	12
Prime	LPG/VPG	9	10	13
Standby	NG	9	10	13
Standby	LPG/VPG	10	11	14

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	9	10	14
Prime	LPG/VPG	10	11	15
Standby	NG	10	11	15
Standby	LPG/VPG	11	12	16

GKP1.6 Gaseous Engine

Configuration	Vertical in-line 3-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	1.6 L (97.6 cubic inches)
Compression ratio	9.1
Bore x stroke	3.4 x 3.7 inches (86 x 94 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	368 lbs. (167 kg)
Length	22.2 inches (56.5 cm)
Width	21.2 inches (53.9 cm)
Height	26.4 inches (67.0 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	11	12	17
Prime	LPG/VPG	12	13	18
Standby	NG	12	14	18
Standby	LPG/VPG	13	15	20

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	13	14	19
Prime	LPG/VPG	14	15	21
Standby	NG	14	16	21
Standby	LPG/VPG	15	17	23

G54E Gaseous Engine

Configuration	Vertical in-line 6-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	5.4 L (330 cubic inches)
Compression ratio	8:1
Bore x stroke	3.9 x 4.7 inches (98 x 118 mm)
Direction of rotation	Counterclockwise
Approx. wet weight	1,324 lbs. (600.5 kg)
Length	58 inches (147.3 cm)
Width	29.8 inches (75.7 cm)
Height	45.5 inches (115.6 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	36	40	54
Prime	LPG/VPG	40	44	59
Standby	NG	40	45	60
Standby	LPG/VPG	44	49	66

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	43	48	64
Prime	LPG/VPG	47	52	70
Standby	NG	48	53	71
Standby	LPG/VPG	52	58	78



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GKP3 Gaseous Engine

Configuration	Vertical in-line 3-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	3.1 L (190 cubic inches)
Compression ratio	9:1
Bore x stroke	4.1 x 4.7 inches (105 x 120 mm)
Direction of rotation	Counterclockwise
Approx. wet weight	1,044 lbs. (473.6 kg)
Length	41.0 inches (104.1 cm)
Width	28.8 inches (73.2 cm)
Height	40.8 inches (103.6 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	23	26	34
Prime	LPG/VPG	24	27	36
Standby	NG	26	28	38
Standby	LPG/VPG	27	30	40

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	25	28	38
Prime	LPG/VPG	27	30	40
Standby	NG	28	31	42
Standby	LPG/VPG	30	33	44



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GKP3TA Gaseous Engine

Configuration	Vertical in-line 3-cylinder
Induction system	Turbocharged and charge air-cooled
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	3.1 L (190 cubic inches)
Compression ratio	9:1
Bore x stroke	4.1 x 4.7 inches (105 x 120 mm)
Direction of rotation	Counterclockwise
Approx. wet weight	1,150 lbs. (521.6 kg)
Length	52.0 inches (132.1 cm)
Width	34.0 inches (86.4 cm)
Height	45.0 inches (114.3 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	44	49	66
Prime	LPG/VPG	40	44	59
Standby	NG	59	65	88
Standby	LPG/VPG	44	49	66

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	50	56	75
Prime	LPG/VPG	45	50	68
Standby	NG	67	75	100
Standby	LPG/VPG	50	56	75



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GKP4 Gaseous Engine

Configuration	Vertical in-line 4-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	4.16 L (254 cubic inches)
Compression ratio	9:1
Bore x stroke	4.1 x 4.7 inches (105 x 120 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	1,334 lbs. (605 kg)
Length	48.5 inches (123.2 cm)
Width	28.8 inches (73.2 cm)
Height	44.4 inches (112.8 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	31	35	46
Prime	LPG/VPG	34	38	51
Standby	NG	35	38	52
Standby	LPG/VPG	38	42	56

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	36	40	53
Prime	LPG/VPG	39	43	58
Standby	NG	40	44	59
Standby	LPG/VPG	43	48	64



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GKP4TA Gaseous Engine

Configuration	Vertical in-line 4-cylinder
Induction system	Turbocharged and charge air-cooled
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	4.16 L (254 cubic inches)
Compression ratio	9:1
Bore x stroke	4.1 x 4.7 inches (105 x 120 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	1,600 lbs. (725.7 kg)
Length	52.5 inches (133.4 cm)
Width	30.0 inches (76.2 cm)
Height	45.0 inches (114.3 cm)
Fuel type	NG/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	56	62	83
Prime	LPG/VPG	47	52	70
Standby	NG	75	83	111
Standby	LPG/VPG	52	58	78

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	64	71	95
Prime	LPG/VPG	54	60	80
Standby	NG	85	95	127
Standby	LPG/VPG	60	66	89

GKP6 Gaseous Engine

Configuration	Vertical in-line 6-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	6.5 L (397 cubic inches)
Compression ratio	9:1
Bore x stroke	4.1 x 4.9 inches (105 x 125 mm)
Direction of rotation	Counterclockwise
Approx. wet weight	1,708 lbs. (774.7 kg)
Length	57.5 inches (146.1 cm)
Width	35.5 inches (90.2 cm)
Height	56.4 inches (143.3 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	51	57	77
Prime	LPG/VPG	56	62	84
Standby	NG	57	63	85
Standby	LPG/VPG	62	69	93

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	57	63	85
Prime	LPG/VPG	63	70	95
Standby	NG	63	70	94
Standby	LPG/VPG	70	78	105

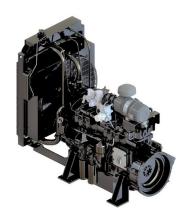


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GKP6TA Gaseous Engine

Configuration	Vertical in-line 6-cylinder	
Induction system	Turbocharged and charge air-cooled	
Combustion system	Spark-ignited	
Cooling system	Water-cooled	
Displacement	6.5 L (397 cubic inches)	
Compression ratio	9:1	
Bore x stroke	4.1 x 4.9 inches (105 x 125 mm)	
Direction of rotation	Counterclockwise	
Approx. wet weight	1,725 lbs. (782.4 kg)	
Length	57.9 inches (147.1 cm)	
Width	35.4 inches (89.9 cm)	
Height	57.4 inches (145.8 cm)	
Fuel type	NG/LPG/VPG	

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	87	96	129
Prime	LPG/VPG	73	81	109
Standby	NG	116	129	172
Standby	LPG/VPG	81	90	121

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	99	110	148
Prime	LPG/VPG	83	93	124
Standby	NG	132	147	197
Standby	LPG/VPG	93	103	138

GKP8 Gaseous Engine

Configuration	Vertical in-line 6-cylinder
Induction system	Naturally aspirated
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	8.8 L (537 cubic inches)
Compression ratio	9:1
Bore x stroke	4.65 x 5.32 inches (118 x 135 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	2,300 lbs. (1,043.2 kg)
Length	72.4 inches (183.9 cm)
Width	40.0 inches (101.6 cm)
Height	60.0 inches (152.4 cm)
Fuel type	NG/ wellhead/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	79	88	118
Prime	LPG/VPG	79	88	118
Standby	NG	88	98	131
Standby	LPG/VPG	88	98	131

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	91	101	135
Prime	LPG/VPG	91	101	135
Standby	NG	101	112	150
Standby	LPG/VPG	101	112	150

GKP8TA Gaseous Engine

Configuration	Vertical in-line 6-cylinder
Induction system	Turbocharged and charge air-cooled
Combustion system	Spark-ignited
Cooling system	Water-cooled
Displacement	8.8 L (537 cubic inches)
Compression ratio	9:1
Bore x stroke	4.65 x 5.32 inches (118 x 135 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	2,840 lbs. (1,270 kg)
Length	80.0 inches (203.2 cm)
Width	44.0 inches (111.8 cm)
Height	63.0 inches (160.0 cm)
Fuel type	NG/ LPG/ VPG

50 Hz (1,500 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	117	130	175
Prime	LPG/VPG	98	109	147
Standby	NG	156	174	233
Standby	LPG/VPG	109	121	163

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWe	kWm	ЬНР
Prime	NG	134	149	200
Prime	LPG/VPG	112	125	168
Standby	NG	179	198	266
Standby	LPG/VPG	125	139	186

2R550NA Diesel Engine

Configuration	Vertical in-line 2-cylinder
Induction system	Naturally aspirated
Combustion system	Direct injection
Emissions compliance	Tier IV
Cooling system	Water-cooled
Displacement	1.1 L (67.1 cubic inches)
Compression ratio	19.7:1
Bore x stroke	3.4 x 3.7 inches (86 x 94 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	287 lbs. (130 kg)
Length	18.4 inches (46.8 cm)
Width	20.4 inches (51.8 cm)
Height	24.9 inches (63.3 cm)
Fuel type	Diesel

60 Hz (1,800 RPM)				
Appli- cation Fuel kWm bHP				
Prime	Diesel	11.5	15.7	



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3R550NA Diesel Engine

Configuration	Vertical in-line 3-cylinder
Induction system	Naturally aspirated
Combustion system	Direct injection
Emissions compliance	Tier IV
Cooling system	Water-cooled
Displacement	1.6 L (97.6 cubic inches)
Compression ratio	19.7:1
Bore x stroke	3.4 x 3.7 inches (86 x 94 mm)
Direction of rotation	Counterclockwise
Approx. dry weight	368 lbs. (167 kg)
Length	22.2 inches (56.5 cm)
Width	21.2 inches (53.9 cm)
Height	26.4 inches (67.0 cm)
Fuel type	Diesel

60 Hz (1,800 RPM)				
Appli- cation	Fuel	kWm	ЬНР	
Prime	Diesel	17.3	23.5	



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VRU-1 / VRU-2 Compressor

FRAME

Horsepower

Speed range

Max. combined rod load

Stroke

Friction

Frame lubrication

Main bearings

Frame oil capacity

VRU-1

15 bHP

150-600 RPM

10,000 lbs.

2-1/4 inches

2 HP

Splash

Tapered roller

2 gallons

VRU-2

50 bHP

150-900 RPM

10,000 lbs.

2-1/4 inches

4 HP

Splash

Tapered roller

4 gallons

CYLINDERS

5-In. dia., dbl.-acting 5-In. dia. piston mat. 8-In. dia., dbl.-acting 8-In. dia. piston mat. Piston rod diameter Cylinder lubrication Valves 350 PSIG MAWP

Ductile iron

150 PSIG MAWP

Anodized aluminum

1-1/8 inches

Non-lube

Ductile iron w/poppets

350 PSIG MAWP

Ductile iron

150 PSIG MAWP

Anodized aluminum

1-1/8 inches

Non-lube

Ductile iron w/poppets



VRC-2 Compressor

Rated horsepower	150 HP (112 kW)
Maximum speed	1,800 RPM
Number of throws	2
Rod load – tension	7,000 lbs. (3175 kg)
Rod load – compression	7,000 lbs. (3175 kg)
Rod load – combined	14,000 lbs. (6350 kg)
Stroke	3 inches (76.2 mm)
Piston speed	900 ft./min. (4.57 m/s)
Crankshaft diameter	2.50 inches (63.50 mm)
Overall length with cylinders	22.5 inches (.57 m)
Overall width with cylinders	95 inches (2.41 m)
Unit weight with cylinders	1700 lbs. (771 kg)
Oil pump capacity	4 gal. (15 liter)
Oil sump capacity	4 gal. (15 liter)
Main bearing type	Spherical roller

FEATURES

Double-acting cylinders from 2.5-in. bore diameter at 1,500 PSIG MAWP up to 8.0-in. bore diameter at 200 PSIG MAWP

Steeple cylinders from 2.25-in. bore diameter at 2,250 PSIG MAWP up to 4.5-in. bore diameter at 1,000 PSIG MAWP



VRS-2 Compressor

Stroke	3 inches (76.2 mm)
Maximum speed	1,800 RPM
Piston speed	900 ft./min. (4.57 m/s)
Number of throws	2
Horsepower	275 HP (205 kW)
Piston rod diameter	1.125 inches (28.575 mm)
Crankshaft diameter	2.75 inches (69.85 mm)
Height – bottom to crankshaft	13 inches (330.2 mm)
Maximum width	100 inches (2.54 m)
Maximum length	33 inches (0.838 m)
Approx. weight with cylinders	2,500 lbs. (1134 kg)
Rod load - tension	10,000 lbs. (4536 kg)
Rod load - compression	10,000 lbs. (4536 kg)
Rod load - combined	20,000 lbs. (9072 kg)
Oil pump capacity	4 GPM (15 LPM)
Oil sump capacity	4 gal. (15 L)
Main bearing type	Spherical roller



VRS-4 Compressor

Stroke	3 inches (76.2 mm)
Maximum speed	1,800 RPM
Piston speed	900 ft./min. (4.57 m/s)
Number of throws	4
Horsepower	550 HP (410 kW)
Piston rod diameter	1.125 inches (28.575 mm)
Crankshaft diameter	2.75 inches (69.85 mm)
Height – bottom to crankshaft	13 inches (330.2 mm)
Maximum width	100 inches (2.54 m)
Maximum length	66 inches (1.67 m)
Approx. weight with cylinders	6,500 lbs. (2948 kg)
Rod load - tension	10,000 lbs. (4536 kg)
Rod load - compression	10,000 lbs. (4536 kg)
Rod load - combined	20,000 lbs. (9072 kg)
Oil pump capacity	8 GPM (31.8 LPM)
Oil sump capacity	4 gal. (15 L)
Main bearing type	High load capacity journal



VRS2/VRS4 Cylinder Options

DOUBLE-ACTING CYLINDERS				
BORE inches	FLANGE SIZE inches/Class	MAXIMUM CLEARANCE %	MAWP PSI	RDP PSI
2.5	1.5 in./900#	1.5 in./900#	2250	2025
2.5 HP	1.5 in./1500#	1.5 in./1500#	2750	2475
3	1.5 in./900#	1.5 in./900#	2250	2025
3 HP	1.5 in./1500#	1.5 in./1500#	2750	2475
3.5	2 in./600#	2 in./600#	1270	1150
4	2 in./600#	2 in./600#	1270	1150
4.5	2.5 in./600#	2.5 in./600#	1100	990
5	2.5 in./600#	2.5 in./600#	1100	990
5.5	3 in./300#	3 in./300#	635	575
6	3 in./300#	3 in./300#	635	575
6.5	4 in./300#	4 in./300#	500	450
7	4 in./300#	4 in./300#	500	450
7.5	4 in./300#	4 in./300#	350	315
8	4 in./300#	4 in./300#	350	315
9.5	6 in./150#	6 in./150#	250	225
10	6 in./150#	6 in./150#	250	225





VRS2/VRS4 Cylinder Options

	STEEPLE CYLINDERS				
BORE inches	FLANGE SIZE inches/Class	MAXIMUM CLEAR. %	MAWP PSI	RDP PSI	
2.5 / 1.375	1.5"/1500# X 1.5" SPECIAL FLG.	0	2750/6000	2475/5400	
3.0 / 1.375	1.5"/1500# X 1.5" SPECIAL FLG.	0	2750/6000	2475/ 5400	
3.5 / 2.25	2.0"/600# X 1.5"/1500#	26 W/ HEAD SPACERS	1270/2550	1150/2025	
4.0 / 2.25	2.0"/600# X 1.5"/1500#	26 W/ HEAD SPACERS	1270/2250	1150/2025	
4.5 / 2.50	2.5"/600# X 1.5"/1500#	26 W/ HEAD SPACERS	1100/2250	990/2025	
4.5 / 3.0	2.5"/600# X 1.5"/900#	26 W/ HEAD SPACERS	1100/1500	990/1350	
4.5 / 3.5	2.5"/600# X 1.5"/900#	26 W/ HEAD SPACERS	1100/1500	990/1350	
5.0 / 2.50	2.5"/600# X 1.5/1500#	26 W/ HEAD SPACERS	1100/2250	990/2025	
5.0 / 3.0	2.5"/600# X 1.5"/900#	26 W/ HEAD SPACERS	1100/1500	990/1350	
5.0 / 3.5	2.5"/600# X 1.5"/900#	26 W/ HEAD SPACERS	1100/1500	990/1350	
5.5 / 3.0	3.0"/300# X 1.5"/900#	26 W/ HEAD SPACERS	635/1500	575/1350	
5.5 / 3.5	3.0"/300# X 1.5"/900#	26 W/ HEAD SPACERS	635/1500	575/1350	
6.0 / 3.0	3.0"/300# X 1.5"/900#	26 W/ HEAD SPACERS	635/1500	575/1350	
6.0 / 3.5	3.0"/300# X 1.5"/900#	26 W/ HEAD SPACERS	635/1500	575/1350	
6.5 / 4.0	4.0"/300# X 2.0"/600#	26 W/ HEAD SPACERS	500/1000	450/900	
6.5 / 4.5	4.0"/300# X 2.0"/600#	26 W/ HEAD SPACERS	500/1000	450/900	
7.0 / 4.0	4.0"/300# X 2.0"/600#	26 W/ HEAD SPACERS	500/1000	450/900	
7.0 / 4.5	4.0"/300# X 2.0"/600#	26 W/ HEAD SPACERS	500/1000	450/900	

ENGINES

KP-SERIES	KP3 KP3TA	KP4 KP4TA	KP6 KP6TA	KP8 KP8TA
A-SERIES	A54		A54E	
C-SERIES	C-46	C-66	C-96	C-106
VRD-SERIES	VRD30	VRD40	VRD60	VRD100

COMPRESSION PRODUCTS

Compressor Frames	CNG Compressor	Vapor Recovery	Gas Lift Packages	Custom
VRC-2	Frames and	Units	Electric HP	Compression
VRS-2	Packages	VRU-1	Gas Engine (VR,	Packages
VRS-4	VRC-CNG	VRU-2	A-Series, CAT)	

REPLACEMENT PARTS

Waukesha	145G/F817	140G/F554	F18	H24	WAK/1197	
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