DS Series compressors

High-speed reciprocating compressors readily configured for a wide range of applications

Like the original FE Frame, which is widely used in a variety of natural gas applications, our proven DS Series machines are available in two stroke configurations from 1,200 to 2,400 HP and can be readily resized and re-applied in the field.

Performance features

Type
Horizontal balanced opposed, two or four throws with a wide range of arrangements to meet your performance needs.

Frame
The heavily-ribbed frame is made from smoothly contoured iron casting with doweled, separable crosshead guides. The sides of the frame are bolted together by means of full-depth main bearing caps. These caps extend from the bearing to the top of the frame, adding strength and stiffness.

Crankshaft
Every GE crankshaft is certified using state-of-the-art scanning CMM technology. One-piece forged-steel design with integral counterweights, balanced for smooth operation. Journals are precision ground and polished to close tolerances. The main and crankpin journals are both the same diameter for maximum stiffness and torque transmission. The crankshaft can be serviced and removed through the top of the frame.

Cylinders
A wide range of cylinder options is available. All cylinders for the 5" and 6" stroke frames are water cooled and feature field replaceable liners. Liners feature iron nitrided bores.

Compressor valves
Steel valve seats and guards; MTX or HTCX valve plates are standard. Valve springs and plates are easily tailored to meet your operating conditions. Valves are arranged so that the suction valve cannot fit into the discharge valve ports.

Piston/piston rods
Aluminum alloy or cast iron pistons. Weight is precisely controlled during manufacturing to eliminate the need to match parts in the field. Carbon-filled Teflon combo piston rider rings are standard. Piston rods are 4140 steel with rolled threads and are flame hardened in the packing box area with full-floating vented rod-and-wiper rings.

Connecting rods
Rods are made from carbon steel I-section drop forgings. The crosshead end is fitted with a solid precision type bushing. The crank end utilizes split precision type tri-metal bearings.

Crossheads
Single-piece ductile iron crossheads with full floating hardened and ground alloy steel crosshead pins and integral babbitt-coated crosshead shoes.

Compressor lubrication
Lube oil pump is driven directly by the compressor crankshaft – there are no chains to wear or go out of adjustment. The system features an oil cooler, full-flow non-bypassing synthetic media oil filter and oil-pressure regulating valve. A hand-operated pre-lube pump is standard. Oil passages drilled in the crankshaft carry oil to the crankpin bearings, through the rifle-drilled connecting rods to the crosshead pin and guides.

Packing and cylinder lubrication
Standard lubrication systems consist of shaft-driven force-feed lubricator pump, hand-priming device, overpressure indicating DNFT no-flow shutdown switch, and block distribution system with cycle indicator.

Standard testing
All frames receive a mechanical run test and post-test inspection to GE's high standards. All cylinders undergo hydrostatic testing to a minimum of 1.5 times the maximum allowable working pressure.

Standard accessories
Specialized tools, where applicable, are included in the toolbox.

Optional items
Drive-through arrangement, materials suitable for sour gas service, vibration switches, CSA or XP no-flow switches, immersion oil heaters, flywheels and drive couplings. Also available are API 618 type II and III distance pieces, stainless steel piston rods with carbide coating in the packing area, and finger-type valve unloaders and automatic VVCP.

Throw configurations		
Compressor throws	2	4
Max. BHP (kW)	1,200 (895)	2,400 (1,790)
Frame weight lbs (kg) dry*	3,550 (1,610)	7,150 (3,243)
Frame length inches (cm)*	50.8 (128.9)	86.6 (220)
Frame width inches (cm)*	61 (154.9)	61 (154.9)
Frame height inches (cm)	38.1 (96.8)	38.1 (96.8)

Stroke configuration		
Stroke inches (mm)	5 (127)	6 (152.4)
Max. rated speed (rpm)	1,500	1,200

Heavy duty running gear		
Rod load - tension	35,000 lbs-f	155.69 kN
Rod load - compression	35,000 lbs-f	155.69 kN
Combined rod load	70,000 lbs-f	311.38 kN
Piston rod diameter	2 inches	50.8 mm
Crankshaft material	F.S.	
Connecting rod material	F.S.	
Crankpin & main bearing diameter	5 inches	127 mm
Crankpin & main bearing width	2.75 inches	69.9 mm

* without cylinders F.S. = Forged Steel

Model nomenclature
DS504 = DS, 50, 4,
Model = Frame, Stroke (in), Throws

	DS Series (DS50 & DS60)											MAWP PSIG	Cylinder cooling	Material	Flange dia inch	Flange rating PSIG	
	Series	Cylinder bore - inches															
Double acting	89	2.75	2.875	3	3.125	3.25	3.375	3.50	3.625	3.75		4,700	Gas	F.S.	2.5	2,500	
	89	3.50	3.75	4	4.25							3,600	Gas	D.I.	2.5	1,500	
	89	4.25	4.50	4.75	5	5.25	6					2,500	Water	D.I.	3	1,500	
	89	5.50	5.75	6	6.25	6.50	7					2,200	Water	D.I.	4	1,500	
	95	5.50	5.75	6	6.25							3,600	Gas	F.S.	4	2,500	
	06	6.75	7	7.25	7.50	7.75	8.25					1,800	Water	D.I.	4	900	
	06	8	8.50	8.75	9	9.25	9.50	9.75	10.25			1,800	Water	D.I.	6	900	
	06				10	10.25	10.50	10.75	11	11.25	11.75	1,250	Water	D.I.	6	600	a
	06	11.50	11.75	12	12.50	12.75	13	13.50	13.75	14.25		800	Water	D.I.	8	400	
	06	14	14.50	15	15	15.50	16	16.50				635	Water	D.I.	8	300	
	07	16.50	17	17.50	18	18.50	19	19.50	20	20.50	21	250	Water	C.I.	14	300	b
	07	21.50	22	22.50	23.50							250	Water	C.I.	14	300	b
Pipeline	06P	9.75	10	10.25	10.50	10.75	11					1,250	Water	D.I.	6	600	a

L = Nitrided Liner - field replaceable
TL = Thin Liner
NL = No Liner
TH = Thick Liner

D.I. = Ductile Iron
F.S. = Forged steel
C.I. = Cast Iron

SAHE = Tandem cylinder - Single Acting Head End
SACE = Tandem cylinder - Single Acting Crank End

a, b, c, etc. Designates cylinders having identical XYZ flange dimensions to assist interchangeability and package piping standardization

Designed for flexibility

- The DS Series is backed by 100 years of GE compressor design experience
- Part of a complete line of reciprocating compressors featuring advanced technology and work-proven designs
- Compressor stroke can be changed by replacing the crankshaft and piston assembly
- The cylinders can be relined to a variety of bore dimensions in the field to always match your operating conditions
- Many cylinders have identical X, Y and Z flange locations, allowing packages to be reconfigured without any changes to the piping and bottles
- Over 18,000 GE high-speed reciprocating compressors have been built to date

All GE high-speed reciprocating compressors are packaged, serviced and maintained by a worldwide network of authorized packagers and distributors.

Operating benefits

- Compressor is easily reconfigured to meet your changing requirements
- Reduces lifecycle cost and increases production
- Reduces required inventory of machinery and parts
- Higher efficiency, lower fuel or electricity consumption
- Lower cost of reconfiguration
- Greater utilization of driver power over a wide range of conditions

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