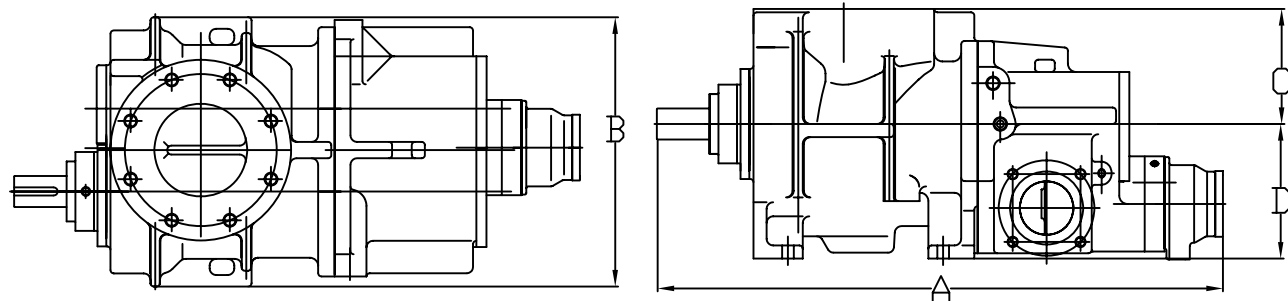


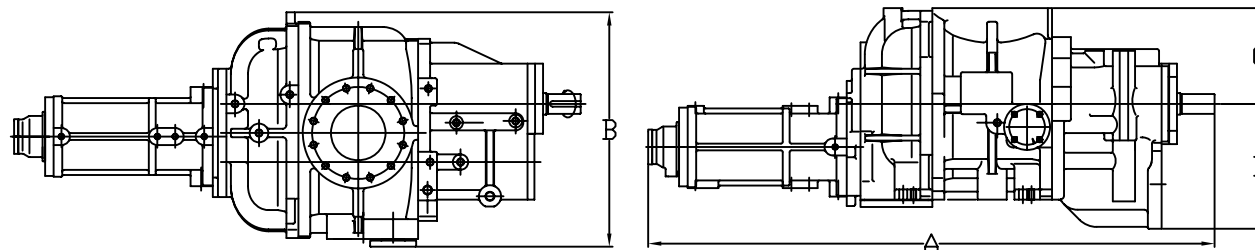
GB SERIES



GB Series Approximate dimension and weight

Model	11S	13S	13L	16S	16L
A (m)	Consult KOBELCO	0.74		0.86	
B (m)		0.34		0.42	
C (m)		0.15		0.18	
D (m)		0.17		0.21	
Weight (kgf)	300	295	320	430	455

NB SERIES

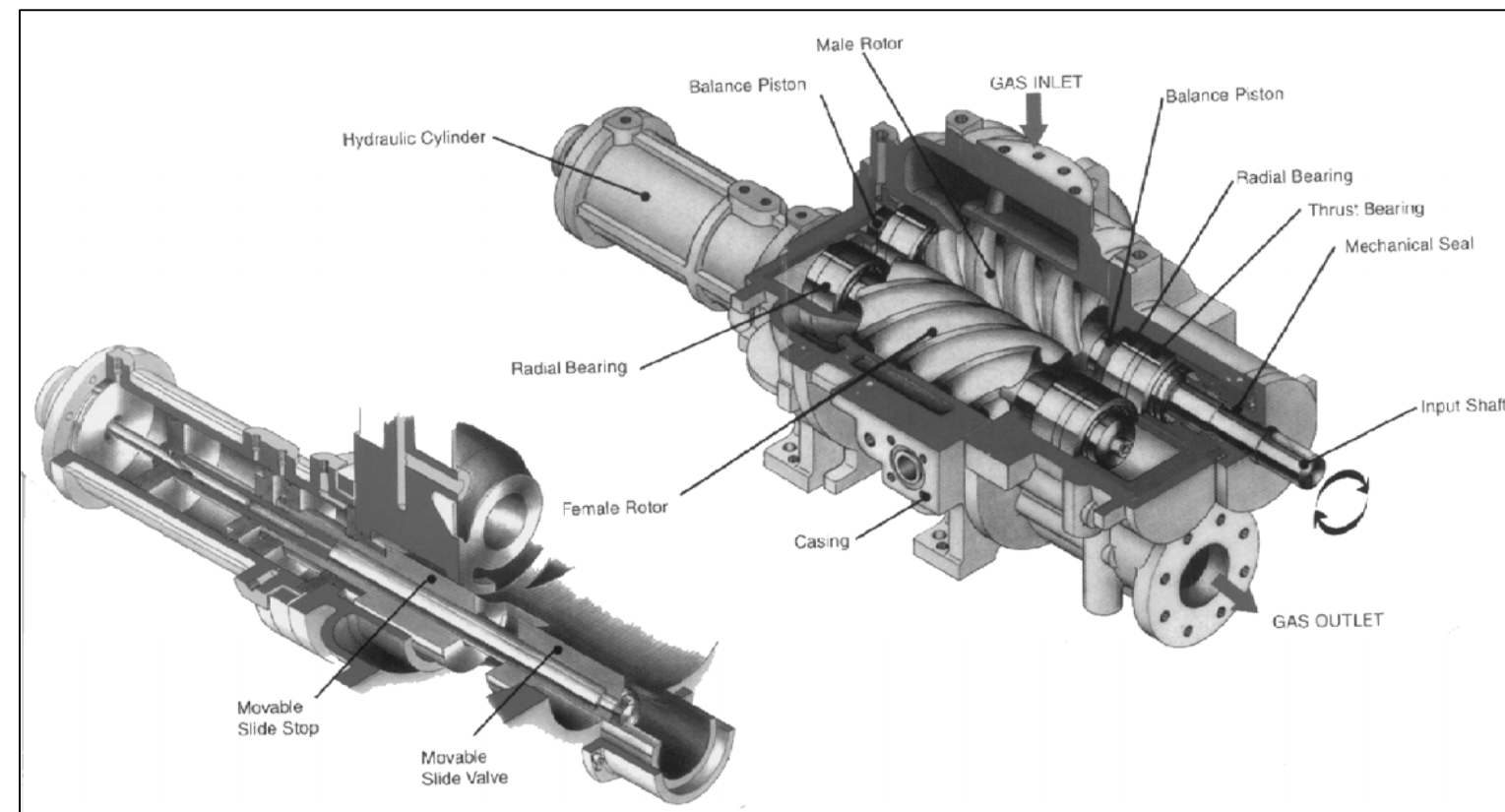


NB Series Approximate dimension and weight

Model	19M	19L	19LL	23M	23L	23LL	28M	28L	28LL	32M	32L	32LL
A (m)	1.55	1.64	1.70	1.88	1.99	2.08	2.15	2.28	2.38	2.44	2.59	2.87
B (m)	0.69			0.78			0.94			1.04		
C (m)	0.28			0.35			0.41			0.45		
D (m)	0.36			0.44			0.55			0.61		
Weight (kgf)	900	995	1110	1570	1700	1815	2600	2800	2980	3950	4200	4830

KOBELCO

NB & GB SERIES SCREW COMPRESSORS



FEATURES

Variable V_i (NB Series)	<ul style="list-style-type: none"> • 4 Step auto or simple manual control (Hydraulically actuated) ($V_i=2.2, 2.9, 3.65 \text{ \& } 5.0$) • Also the patented fixed V_i is available by the simple V_i block
Slide Valve	<ul style="list-style-type: none"> • Stepless capacity control (Hydraulically actuated) (from 100% to around 20% of full load capacity) • With visual position indicator
All Anti-Friction Bearings	<ul style="list-style-type: none"> • No need pre-lube and also main oil pump depending on applications • No yellow metal cage is used (polyamide or steel cage) • Better volumetric efficiency by the small bearing clearance • Smaller BHP by low bearing friction loss
Double Balance Piston (NB Series)	<ul style="list-style-type: none"> • Long bearing life by the patented double balance piston control
Super Rotor	<ul style="list-style-type: none"> • KOBELCO's own patented high efficient Super Rotor (NB Series 5 + 6 & GB Series 4 + 6 Lobe Combination)
Mechanical Seal	<ul style="list-style-type: none"> • John Crane balanced type shaft seal • With an additional oil seal for no leakage after shut down
Other User Friendly Design	<ul style="list-style-type: none"> • Discharge labyrinth seal having the ability to take certain amount of suction liquid without damage • Clock wise rotation as seen from driver, can be directly coupled to any standard engines

KOBELCO COMPRESSORS

Offices & Plant, USA Tokyo office, Japan

3000 Hammond Avenue
Elkhart, IN 46516

TEL 574-295-3145
FAX 574-293-1641

<http://www.kobelcocompressors.com>

9-12, Kita-Shinagawa 5-Chome
Shinagawa-ku
Tokyo 141-8688 Japan

TEL +81-3-5739-6711
FAX +81-3-5739-6991/6992

<http://www.kobelco.co.jp/compressor>
E-mail:rotating-1@kobelco.com

SUBJECT TO CHANGE WITHOUT NOTICE

R.4 08/09

VARIABLE Vi AND SLIDE VALVE CONTROL

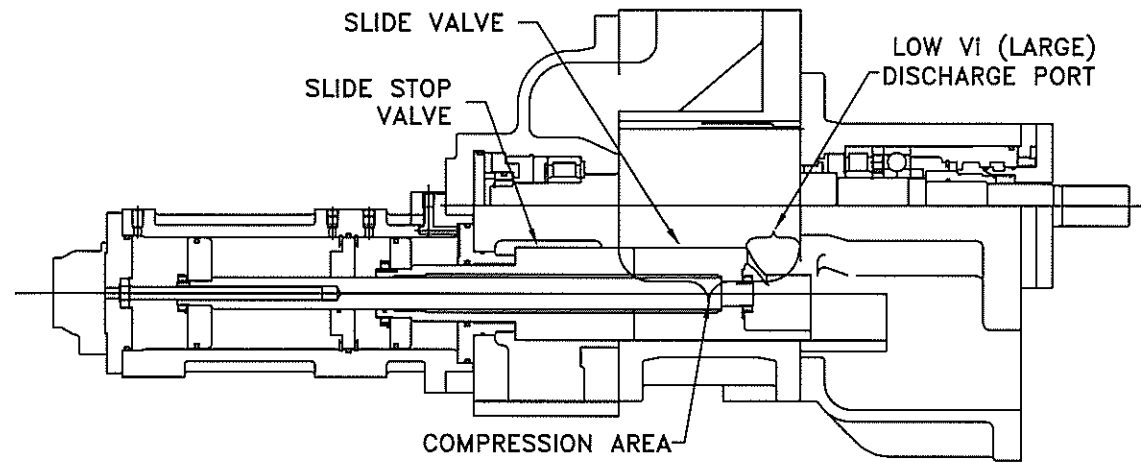


FIG 1 FULL CAPACITY AT LOW Vi

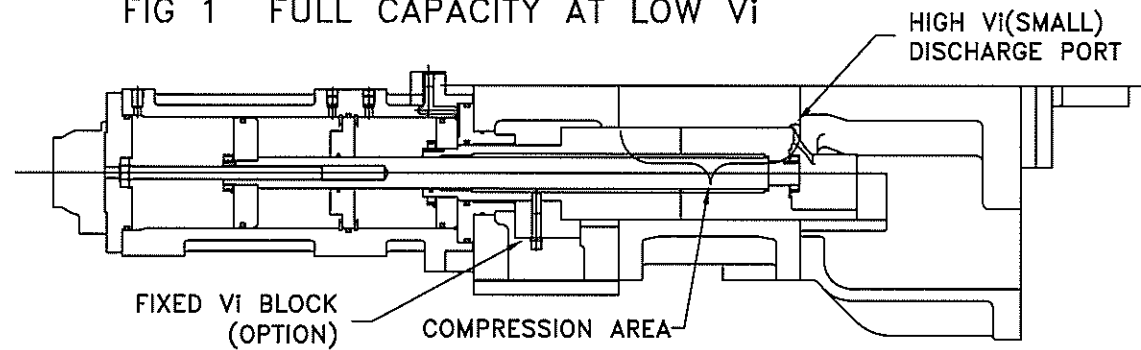


FIG 2 FULL CAPACITY AT HIGH Vi

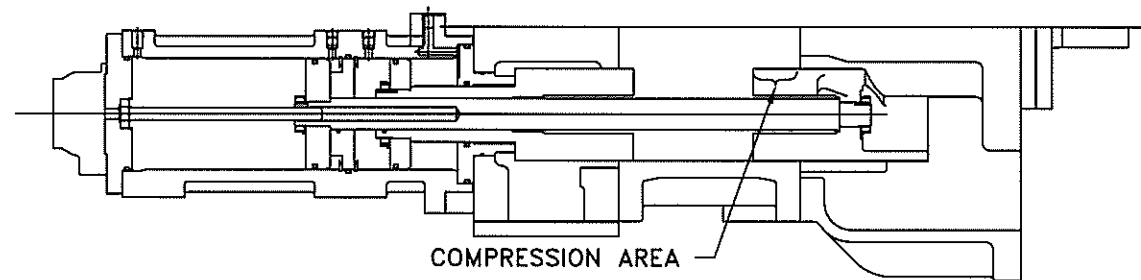


FIG 3 MINIMUM CAPACITY AT LOW Vi

Compressor Material

Casing	ASTM A48 CL40 Gray Iron (NB Series) ASTM A48 CL35 Gray Iron (GB Series)
Rotor	AISI 1141 or 1137, Carbon Steel
Bearing	Radial: Cylindrical Roller bearing with polyamide or steel cage Thrust: 4 point contact ball bearing with steel cage (NB series) Angular contact ball bearing with polyamide cage (GB series)
Shaft Seal	John Crane 9B balanced type [Carbon + cast iron] (NB series) John Crane bellow spring balanced type [Carbon + cast iron] (GB series)
O-ring	Neoprene (Viton is available)

GB SERIES COMPRESSOR DATA

Item	Unit	11S	13S	13L	16S	16L
MDWP	barG	24.1				
MAX. DIS. PRESS (1)	barG	20.7				
Vi	-----	2.5/3.5/5.0				
Male Rotor Diameter, Dm	mm	122.6	147.2	174.4		
Female Rotor Diameter, Df	mm	114.7	137.6	163.1		
Length to Dm Ratio (L/Dm)	-----	1.28	1.12	1.41	1.20	1.57
Swept Volume (m ³ /hr)	(3000 rpm)	220	324	406	595	720
	(1500 rpm)	110	162	203	298	360
MAX. SPEED	rpm	6000	5600	4800		
Connection Size Suction	in	Special 2-1/2"	ANSI 300# 4"	ANSI 300# 5"		
Discharge	in	NPT 2"	SPECIAL 2"	SPECIAL 2.5"		
Min. Capacity (2)	%	40	20			
Rotor Inertia WR ² (3)	kgf-m ²	0.018	0.039	0.049	0.100	0.129
Equivalent Length (3)	m	112	64.3	61.9	27.7	25.6

NOTE:

- MAX. INLET PRESSURE ---- 6.9(barG)(1)
- MAX. DIS. TEMPERATURE ---- 100(°C)
- MAX. BEARING OIL SUPPLY ---- 63(°C)
- MIN. SPEED (1) ----- 600(rpm)

- (1) DEPENDS ON OPERATING CONDITION
- (2) SUCTION FLOW MAY BE ZERO AT FULL UNLOADED SLIDE VALVE POSITION BELOW 1500rpm
- (3) DOES NOT INCLUDE A SHAFT COUPLING. THE DESIGN AND SELECTION OF THE SHAFT COUPLING IS THE RESPONSIBILITY OF THE CUSTOMER.

NB SERIES COMPRESSOR DATA

(Model 28MNB & 32MNB were discontinued.)

Item	Unit	19M	19L	19LL	23M	23L	23LL	28M	28L	28LL	32M	32L	32LL
MDWP	barG	27.6	24.1	27.6			24.1	27.6	24.1				
MAX. DIS.PRESS(1)	barG	20.7/24.1	20.7	20.7/24.1			17.2	20.7	20.7/24.1	17.2	20.7	10.3	
Vi	-----	Variable Vi											
Male Rotor Diameter, Dm	mm	225.4			278.4			328.8			381.8		
Female Rotor Diameter, Df	mm	191.0			235.9			278.6			323.5		
Length to Dm Ratio (L/Dm)	-----	1.15	1.55	1.82	1.15	1.55	1.88	1.15	1.55	1.85	1.20	1.50	2.25
Swept Volume (m ³ /hr)	(3000 rpm)	953	1283	1508	1795	2419	2928	2957	3984	4758	4831	6039	9057
	(1500 rpm)	476	642	754	898	1210	1464	1478	1992	2379	2415	3020	4528
MAX. SPEED	rpm	5200		4500	4125			3600					
Connection Size Suction	in	Special 6"	ANSI 300# 6"		Special 8"	ANSI 300# 8"	ANSI 300# 10"	Special 10"	ANSI 300# 10"	ANSI 300# 12"	Special 12"	ANSI 300# 12"	ANSI 300# 16"
Discharge	in	ANSI 300# 4"			ANSI 300# 6"			ANSI 300# 8"			ANSI 300# 10"		
Vi (STANDARD)	-----	2.2/2.9/3.65/5.0											
Vi (OPTION)	-----	-----	-----	1.8/2.2	-----	-----	1.7/2.0	-----	-----	1.7/2.0	-----	-----	1.7/2.0
				2.6/3.1			2.4/2.7			2.4/2.7			2.4/2.7
Min. Capacity (2)	%	25					30	25	30	25	35		
Rotor Inertia WR ² (3)	kgf-m ²	0.438	0.590	0.691	1.256	1.686	2.044	2.870	3.869	4.614	6.330	7.910	11.846
Equivalent Length (3)	m	26.2			11.9			7.10			5.76		