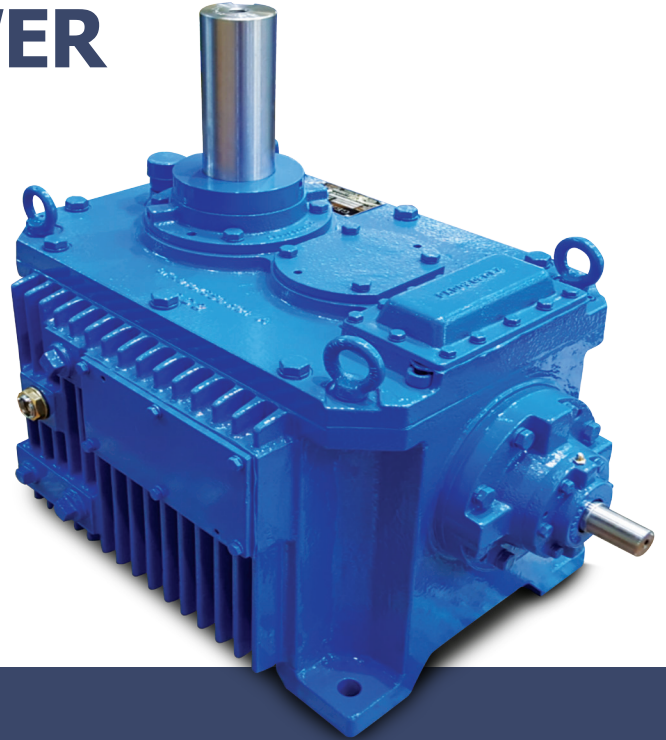


# COOL DRIVE

## GEAR REDUCERS FOR COOLING TOWER



Global Top Energy, Machinery & Plant Solution Provider





# HYOSUNG Gear Drivers

Since 1962, HYOSUNG CORPORATION has been manufacturing products of the highest quality and integrity. With superior design technology and highly advanced and automated manufacturing facilities, HYOSUNG products are built to last.

A superior Quality Management System is standard at HYOSUNG, and our team of professionally skilled craftsmen continuously monitor the manufacturing process to insure an efficient, reliable and top quality product. At HYOSUNG we offer a wide selection of gear drives that can handle any industrial application.

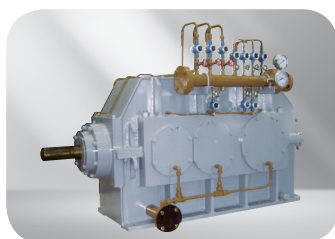
We offer various sizes with ratios up to 500:1 and torque ratings up to 40,000Kg-m output. All gear reducers come with a wide array of standard accessories, configurations and engineered solutions.

Our ISO 9001 Certificate rating guarantees a product of excellence, beginning with the original design and manufacturing, and continuing through to delivery, and our commitment to customer service.

With 54 locations throughout the world, HYOSUNG caters to an international market with HYOSUNG products and services available 24 hours a day with Customer Satisfaction Our Number One Goal.



Gearbox for Industrial Use



Gearbox for Industrial Use



Gearbox for Vertical Roller Mill



Gearbox for Wind Turbine

## HYOSUNG RIGHT ANGLE REDUCERS For Cooling Towers



Hyosung is proud to introduce its newly designed Cooling Tower Reducers using AGMA and CTI standards. We have upgraded our products by reducing vibration and noise plus increasing the efficiency. By using a standard line of products we have shortened delivery times.

Also Hyosung's H-Series Gear Reducers are designed and manufactured to be direct replacements for Marley Cooling Tower right angle drives.

### Bevel Gears

Our spiral bevel gears are made from alloy steel which goes through highly accurate machining processes. They are case hardened and lapped in pairs.

### Helical Gears

The helical gears are designed and manufactured specifically for cooling tower applications. They are made from alloy steel. Gear teeth are case hardened and ground to high AGMA standards.

### Bearings

All are high quality roller bearings from top global manufacturers. All bearings are chosen to meet or exceed minimum life requirements of AGMA and CTI standards. The output shaft bearing that carries the thrust load from the fan shaft is designed for a minimum L10 life of 100,000 hours.

### Housings

Housings are cast iron and provide superior strength and rigidity. They are designed to reduce noise and vibration by using an external four point symmetrical mounting. They also readily absorb internal loads and allow only minimal shaft deflections.

### Seals

Dual lip spring loaded seals with a grease cavity between them are standard on both input and output shafts.

### Warranty

HYOSUNG warrants that our HYOSUNG Cool Drive cooling tower gearbox, including such parts manufactured by others as are integral therewith, shall be free from defects in material and workmanship for a period of twelve months.

This Warranty shall be void if the Supplied Gearbox is not installed, operated, serviced and maintained properly or if transmitted loads are not within the published limits for the gearbox. Additionally, this warranty shall also be void if the gearbox is in any way subjected to: improper storage; accident, damage, abuse or misuse; abnormal operating conditions or applications; or repair or modification by customer or any third party without a prior technical discussion and confirmation from HYOSUNG.

### Options

- Fan
- Backstop
- Pump (Shaft Driven / Motor Driven)
- Shaft Extension
- Extra Painting
- For Low Speed Operation

# Cool Drive Single Reduction

## Permissible Transmitting Power Ratings

Unit : kW(HP)

MODEL	INPUT RPM	RATIO																			
		2	2.5	3	3.25	3.5	3.75	4	4.25	4.5	4.75	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5
		Power Rating (S.F 2.0)																			
A16	1750	27(36)	20(26)	17(22)	15(20)	14(18)		12(16)		10(13)		9(12)		6(8)							
	1450	22(29)	16(21)	14(18)	12(16)	11(14)		10(13)		8(10)		7(9)		5(6)							
	1150	17(22)	13(17)	11(14)	10(13)	9(12)		8(10)		6(8)		6(8)		4(5)							
	950	14(18)	11(14)	9(12)	8(10)	7(9)		6(8)		5(6)		5(6)		3(4)							
A21	1750		44(58)	38(50)	34(45)	31(41)	28(37)	27(36)	25(33)	23(30)	21(28)	19(25)	16(21)	14(18)	12(16)	11(14)					
	1450		37(49)	31(41)	28(37)	26(34)	23(30)	22(29)	20(26)	19(25)	17(22)	16(21)	13(17)	11(14)	10(13)	9(12)					
	1150		29(38)	25(33)	22(29)	20(26)	18(24)	18(24)	16(21)	15(20)	13(17)	12(16)	10(13)	9(12)	8(10)	7(9)					
	950		24(32)	20(26)	18(24)	17(22)	15(20)	14(18)	13(17)	12(16)	11(14)	10(13)	8(10)	7(9)	6(8)	6(8)					
A28	1750						76(101)	68(91)	63(84)	56(75)	51(68)	47(62)	43(57)	36(48)	30(40)	27(36)	24(32)	20(26)	19(25)		
	1450						63(84)	56(75)	52(69)	46(61)	42(56)	39(52)	36(48)	29(38)	25(33)	22(29)	19(25)	17(22)	15(20)		
	1150						50(67)	45(60)	41(54)	36(48)	33(44)	31(41)	28(37)	23(30)	20(26)	17(22)	15(20)	13(17)	12(16)		
	950						41(54)	37(49)	34(45)	30(40)	27(36)	25(33)	23(30)	19(25)	16(21)	14(18)	13(17)	11(14)	10(13)		
A35	1750							101(135)		82(109)	76(101)	69(92)	58(77)	50(67)	44(58)	39(52)	33(44)	31(41)	27(36)	24(32)	
	1450							84(112)		68(91)	63(84)	57(76)	48(64)	41(54)	36(48)	32(42)	28(37)	25(33)	22(29)	20(26)	
	1150							66(88)		54(72)	50(67)	45(60)	38(50)	32(42)	29(38)	25(33)	22(29)	20(26)	18(24)	16(21)	
	950							55(73)		44(58)	41(54)	37(49)	31(41)	27(36)	24(32)	21(28)	18(24)	17(22)	14(18)	13(17)	
A40	1750											97(129)	81(108)	70(93)	63(84)	54(72)	49(65)	42(56)	38(50)	34(45)	32(42)
	1450											80(107)	67(89)	58(77)	52(69)	45(60)	40(53)	35(46)	31(41)	28(37)	26(34)
	1150											64(85)	53(71)	46(61)	41(54)	35(46)	32(42)	28(37)	25(33)	22(29)	21(28)
	950											52(69)	44(58)	38(50)	34(45)	29(38)	26(34)	23(30)	20(26)	18(24)	17(22)
A45	1750											129(172)	108(144)	93(124)	82(109)	74(99)	63(84)	57(76)	51(68)	46(61)	42(56)
	1450											107(143)	90(120)	77(103)	68(91)	61(81)	52(69)	47(62)	42(56)	38(50)	35(46)
	1150											85(113)	71(95)	61(81)	54(72)	49(65)	41(54)	37(49)	33(44)	30(40)	28(37)
	950											70(93)	59(79)	50(67)	44(58)	40(53)	34(45)	31(41)	27(36)	25(33)	23(30)

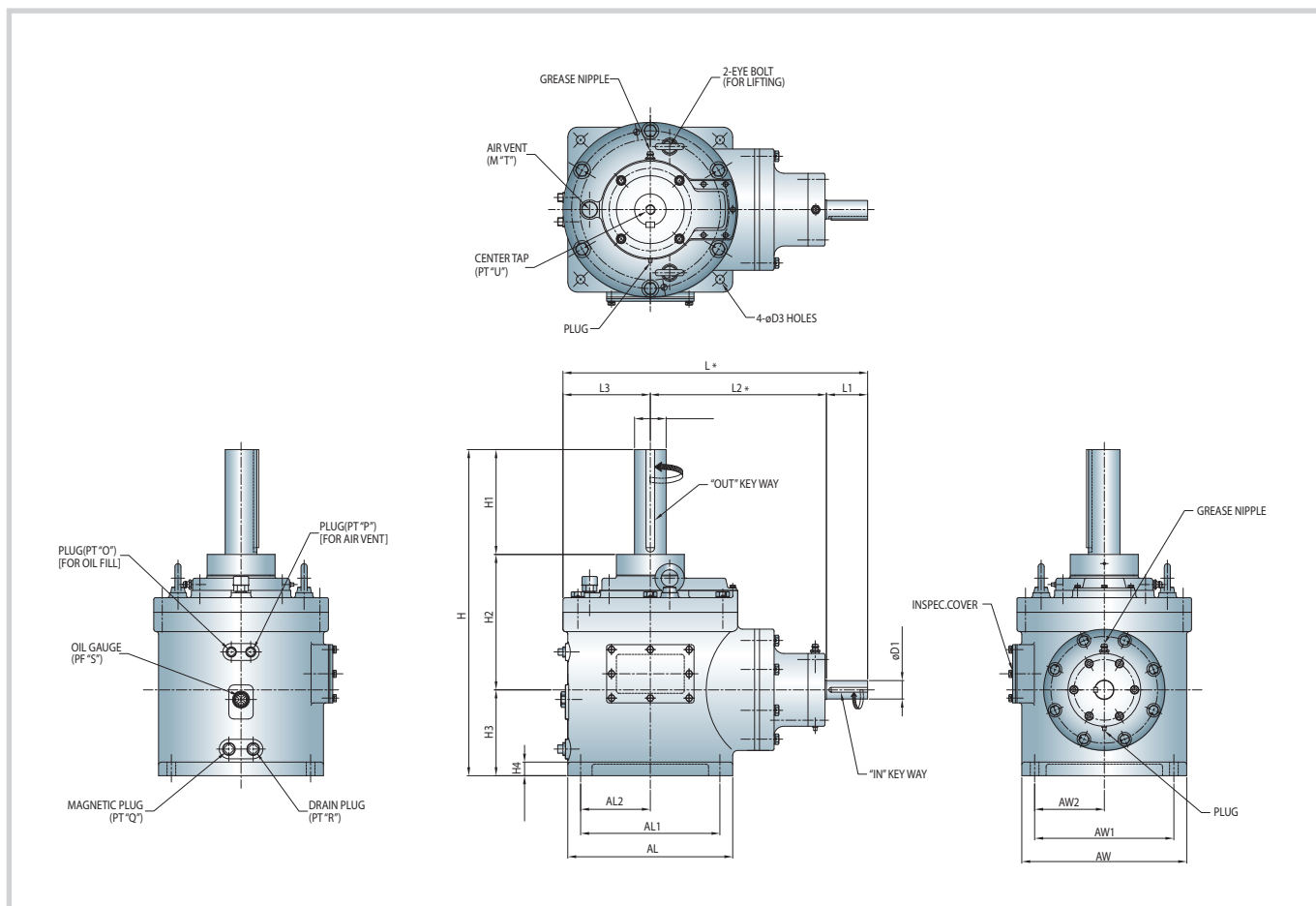
## Exact Ratio

MODEL	RATIO																			
	2	2.5	3	3.25	3.5	3.75	4	4.25	4.5	4.75	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5
A16	1.96	2.48	2.94	3.24	3.44	3.73	3.93	4.23	4.46	4.67	4.92	5.45	5.91							
A21		2.48	2.94	3.24	3.44	3.73	3.93	4.23	4.46	4.67	4.92	5.45	5.91	6.44	6.89					
A28			2.94	3.24	3.44	3.73	3.93	4.21	4.46	4.67	4.92	5.45	5.91	6.44	6.89	7.44	7.89			
A35					3.44	3.73	3.93	4.21	4.46	4.67	4.92	5.45	5.91	6.44	6.89	7.44	7.89	8.44	8.89	
A40							3.93	4.21	4.46	4.67	4.92	5.45	5.91	6.38	6.89	7.38	7.89	8.44	8.89	9.38
A45									4.46	4.67	4.92	5.45	5.91	6.44	6.88	7.44	7.89	8.44	8.89	9.38

## Vertical Shaft Down Thrust Load (N)

MODEL	THRUST LOAD (N)
A16	8,000
A21	9,000
A28	13,000
A35	16,000
A40	21,000
A45	23,000

# Outline Dimensions



Unit : mm

MODEL	L	L1	L2	L3	D1	IN	H	H1	H2	H3	H4	D2	OUT	AL
A16	411	56	220	135	25m6	8x7x47	450	152	171	127	16	45m6	14x9x140	250
A21	512	68	294	150	30m6	8x7x59	590	203	235	152	25	55m6	16x10x190	280
A28	628	85	363	180	38m6	10x8x75	672	216	279	177	28	65m6	18x11x202	340
A35	750.5	95	438	217.5	45m6	14x9x83	753	229	321	203	32	70m6	20x12x214	405
A40	841	98	488	255	45m6	14x9x86	805	241	323	241	32	80m6	22x14x225	480
A45	872	90	507	275	45m6	14x9x78	848	241	366	241	38	80m6	22x14x225	520

\* L, L2 can be adjusted according to BACKSTOP installation

MODEL	AL1	AL2	AW	AW1	AW2	D3	O	P	Q	R	S	T	U	WT(KG)
A16	212	106	250	212	106	15	PT 1/2"	PT 1/2"	PT 1/2"	PT 1/2"	PF 3/4"	M22	M12xDP25	43
A21	234	117	280	234	117	18	PT 1/2"	PT 1/2"	PT 1/2"	PT 1/2"	PF 3/4"	M22	M16xDP35	90
A28	287	143.5	340	287	143.5	18	PT 1/2"	PT 1/2"	PT 3/4"	PT 3/4"	PF 3/4"	M22	M16xDP35	150
A35	359	179.5	405	359	179.5	22	PT 1/2"	PT 1/2"	PT 3/4"	PT 3/4"	PF 3/4"	M22	M20xDP45	230
A40	395	197.5	480	395	197.5	22	PT 1/2"	PT 1/2"	PT 3/4"	PT 3/4"	PF 3/4"	M22	M20xDP45	310
A45	449	224.5	520	449	224.5	22	PT 1/2"	PT 1/2"	PT 3/4"	PT 3/4"	PF 3/4"	M22	M20xDP45	382

# Cool Drive Double Reduction

## Permissible Transmitting Power Ratings

Unit : kW(HP)

MODEL	INPUT RPM	RATIO																			
		7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	12.00	12.50	13.00	14.00	15.00	15.50	16.00	17.00	18.00	19.00	20.00
		Power Rating(Service Factor 2.0)																			
B18	1750	85(113)	78(104)	75(100)	73(97)	70(93)	67(89)	65(87)	62(83)	59(79)	50(67)		48(64)	46(61)							
	1450	66(88)	64(85)	62(83)	60(80)	57(76)	55(73)	53(71)	51(68)	49(65)	42(56)		40(53)	38(51)							
	1150	52(69)	50(67)	49(65)	47(63)	45(60)	43(57)	42(56)	40(53)	38(51)	33(44)		32(43)	30(40)							
B20	1750	88(117)	88(117)	88(117)	88(117)	87(116)	83(111)	83(111)	79(105)	76(101)	64(85)		64(85)	61(81)							
	1450	76(101)	76(101)	76(101)	74(99)	71(95)	68(91)	68(91)	65(87)	62(83)	55(73)		52(69)	50(67)							
	1150	64(85)	64(85)	61(81)	58(77)	56(75)	54(72)	53(71)	51(68)	49(65)	43(57)		41(55)	39(52)							
B22.5	1750	98(131)	98(131)	98(131)	98(131)	98(131)	98(131)	98(131)	94(125)	89(119)	75(100)		69(92)	64(85)							
	1450	83(111)	83(111)	83(111)	83(111)	83(111)	80(107)	79(105)	73(97)	69(92)	60(80)		54(72)	50(67)							
	1150	66(88)	66(88)	66(88)	66(88)	63(84)	59(79)	58(77)	54(72)	51(68)	45(60)		41(55)	38(51)							
B25	1750				138(184)	138(184)	136(181)	134(179)	123(164)	114(152)	95(127)		88(117)	81(108)							
	1450				119(159)	111(148)	102(136)	100(133)	92(123)	86(115)	72(96)		67(89)	62(83)							
	1150				84(112)	78(104)	73(97)	71(95)	66(88)	62(83)	52(69)		49(65)	45(60)							
B28	1750					201(268)	201(268)	201(268)	201(268)	189(252)	152(203)	151(201)	148(197)	129(172)	118(157)	118(157)	109(145)	100(133)	92(123)		
	1450					182(243)	170(227)	167(223)	154(205)	141(188)	120(160)	113(151)	111(148)	98(131)	90(120)	89(119)	83(111)	77(103)	71(95)		
	1150					130(173)	119(159)	117(156)	108(144)	99(132)	85(113)	80(107)	79(105)	70(93)	65(87)	65(87)	60(80)	56(75)	52(69)		
B32	1750									250(333)			208(277)	208(277)	208(277)	206(275)	206(275)	186(248)	170(227)	169(225)	151(201)
	1450									244(325)			181(241)	181(241)	181(241)	173(231)	171(228)	155(207)	143(191)	142(189)	128(171)
	1150									190(253)			150(200)	149(199)	142(189)	135(180)	135(180)	126(168)	115(153)	114(152)	103(137)
B36	1750										285(380)		285(380)	285(380)	285(380)	285(380)	284(379)	263(351)	240(320)	213(284)	193(257)
	1450										247(329)		247(329)	247(329)	247(329)	241(321)	241(321)	222(296)	203(271)	179(239)	163(217)
	1150										207(276)		207(276)	207(276)	207(276)	193(257)	191(255)	177(236)	164(219)	143(191)	131(175)

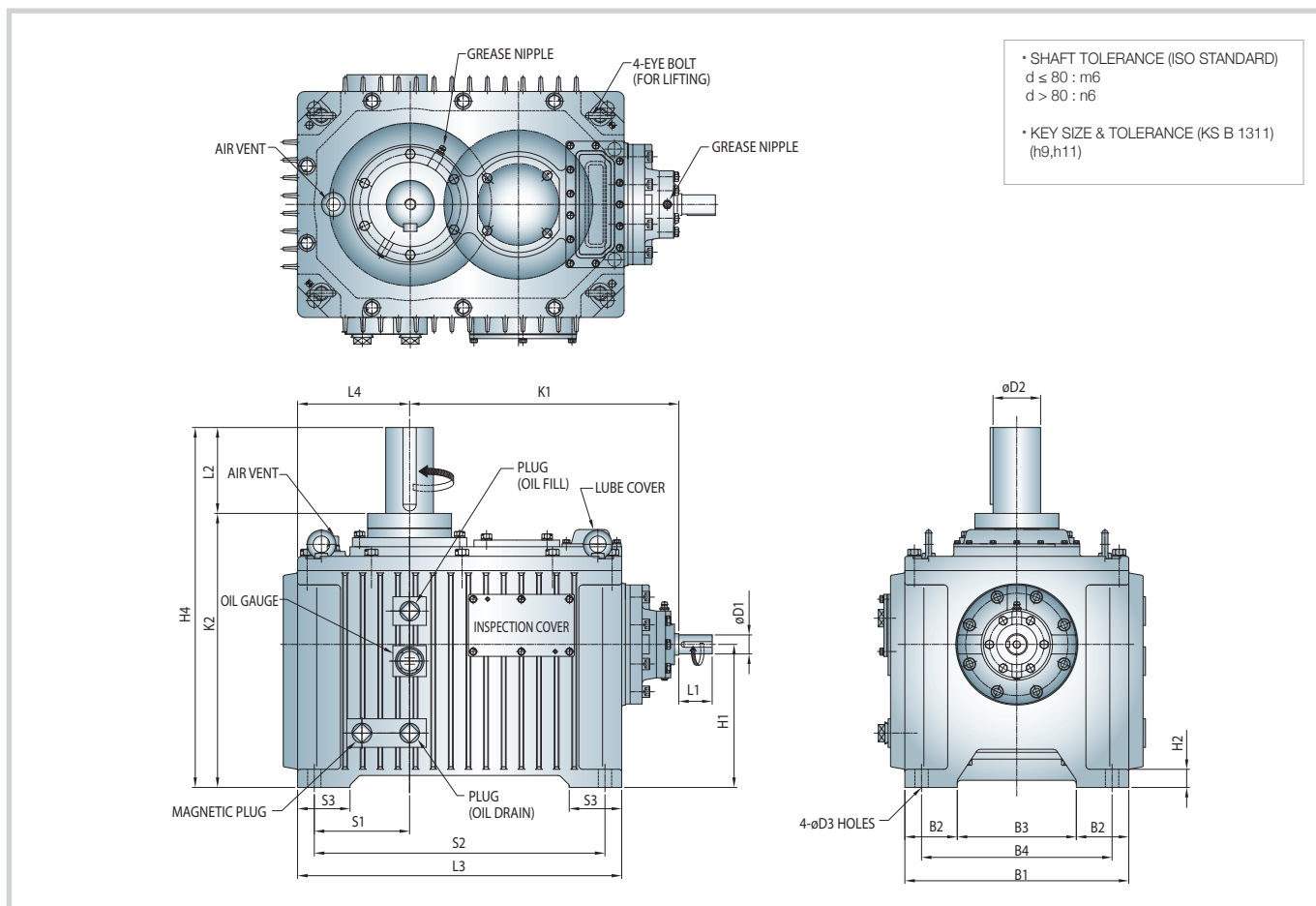
## Exact Ratio

MODEL	INPUT RPM	RATIO																				
		7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	12.00	12.50	13.00	14.00	15.00	15.50	16.00	17.00	18.00	19.00	20.00	
B18		7.04	7.60	7.90	8.44	8.91	9.43	9.88	10.50	11.05	12.10		12.99	13.80								
B20		7.02	7.40	8.04	8.52	9.05	9.63	9.88	10.53	10.97	12.05		12.98	13.83								
B22.5		7.02	7.40	8.04	8.52	9.05	9.63	9.88	10.53	10.97	11.91		12.99	13.93								
B25					8.52	9.05	9.63	9.88	10.53	10.97	12.14		12.99	13.93								
B28						9.00	9.61	9.87	10.42	11.03	12.05	12.57	12.86	14.08	15.11	15.28	16.08	17.16	18.17			
B32									9.88	10.50	11.18			12.99	13.96	14.87	15.70	15.88	17.01	18.07	18.48	19.93
B36									10.11	10.60	11.13	11.91		12.99	13.93	14.95	15.56	15.91	16.98	17.97	19.20	20.26

## Vertical Shaft Down Thrust Load (N)

MODEL	THRUST LOAD (N)
B18	13,000
B20	17,000
B22.5	24,000
B25	27,000
B28	40,000
B32	47,000
B36	62,000

# Outline Dimensions



Unit : mm(inch)

MODEL	D1	L1	D2	L2	K1	K2	L3	L4	H1	H2
B18	45	70	80	140	490	510	585	200	265	30
B20	45	70	90	160	520	535	600	200	280	38
B22.5	45	70	100	180	565	575	680	235	300	38
B25	50	80	110	190	615	615	745	250	320	38
B28	60	100	130	250	690	650	860	300	340	45
B32	70	120	140	240	770	710	945	310	370	55
B36	75	120	160	260	860	785	1070	350	410	55

MODEL	B1	B2	B3	B4	S1	S2	S3	D3	KG(lb)	Liter(gal)
B18	400	90	220	340	170	525	90	24	350	16(4)
B20	430	100	230	360	165	530	100	28	450	20(5)
B22.5	470	110	250	400	200	610	110	28	560	25(7)
B25	500	115	270	430	215	675	115	28	720	34(9)
B28	610	125	360	540	265	790	125	35	950	47(12)
B32	620	140	340	520	260	845	140	42	1350	56(15)
B36	700	140	420	600	300	970	140	42	1850	89(24)



[www.hyosungpni.com](http://www.hyosungpni.com)

## HYOSUNG CORPORATION

**Power & Industrial Systems Performance Group**

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