

4

HELICAL & WORM GEAR

■ UNIVERSAL MOUNTING HW-SERIES

4-1

■ MAX21 BWP/VWP SERIES

4-13



특징

● 고효율

기존의 이단형 웜 감속기의 효율에 비하여 1.5배 이상의 뛰어난 효율을 지녔습니다.

● 고강성

감속기 CASE가 한 몸체에 기어를 전부 내장하고 있으므로 구조상의 강성이 높아 콤팩트한 설치가 가능합니다.

● 편리성

모터 입력축의 위치가 감속기의 중앙에 있으므로 사용자의 입장에서 선택과 설치 설계가 용이합니다.

형식

● 중실축형

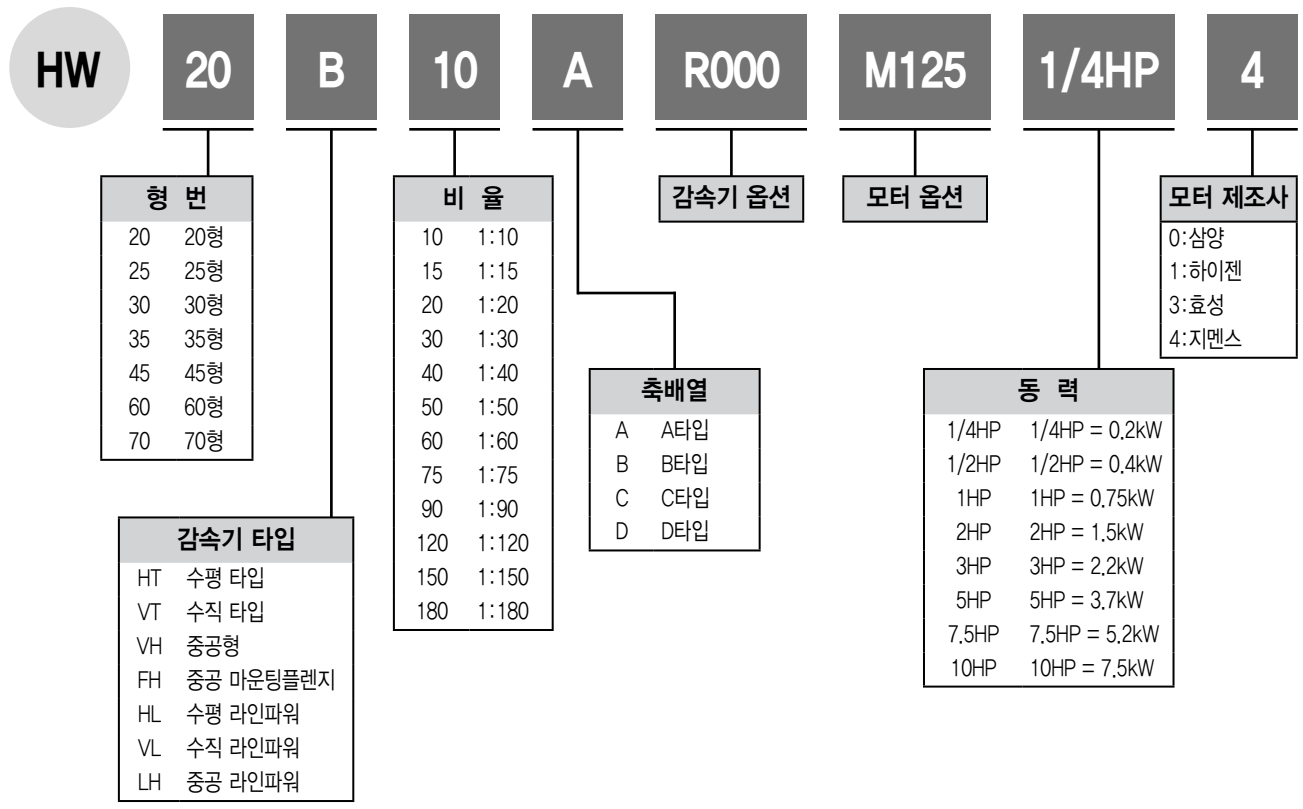
출력축이 일반 원통형의 축에 KEY홀이 있어서 COUPLING 또는 PULLEY 설치로 사용할 수 있는형태입니다.

● 중공축형

출력축이 중공형태입니다. 별도로 COUPLING이 PULLEY를 요하지 않고 피동축에 직결할 수 있습니다.

● 모터 부착형

출고시에 모터를 장착한 상태로 구입할 수 있습니다.

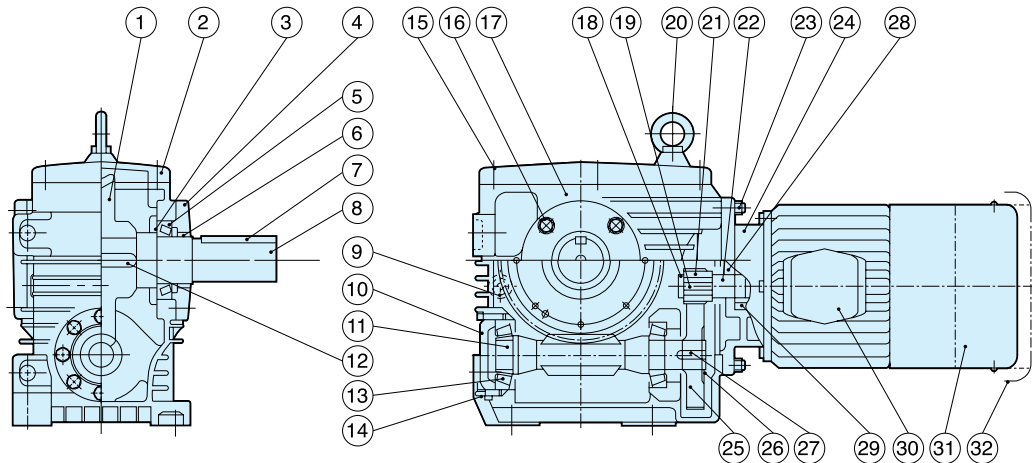


HW Duty Table

동력 기어비	0.2kW (1/4HP)	0.4kW (1/2HP)	0.75kW (1HP)	1.5kW (2HP)	2.2kW (3HP)	3.7kW (5HP)	5.5kW (7.5HP)	7.5kW (10HP)
10	HW20	-	HW25	HW30	HW35	HW45	HW60	2520
15								
20								
30								
40	HW25	HW30	HW35	HW45	HW60	HW70	-	-
50								
60								
75								
90	HW25	HW30	HW35	HW45	HW60	HW70	-	-
*104								
120								
*140								
150	HW25	HW30	HW35	HW45	HW60	HW70	-	-
180								

주1. 입력 회전수 : 1800 rpm 기준
 주2. S.F = 1.0 기준 (1이상을 필요한 경우 연구소에 문의 바랍니다.)
 * 주차기용

조립도

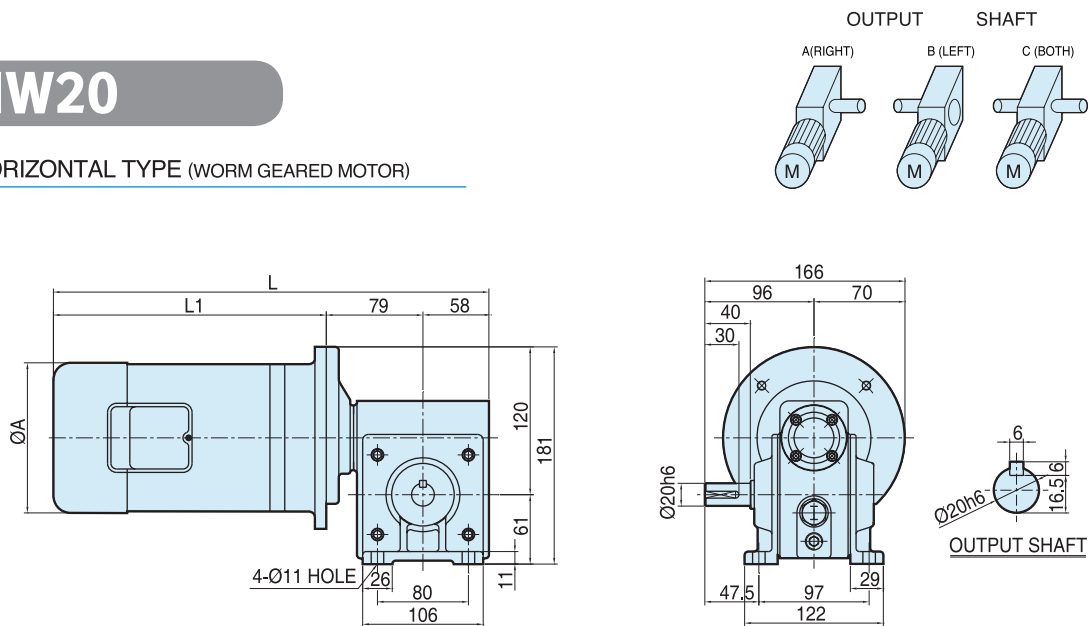


각부명칭

- | | |
|------------------------|--------------------|
| 1. WORM GEAR(WHEEL) | 17. CASE |
| 2. HEAD COVER | 18. SNAP RING |
| 3. GERASE COVER | 19. KEY |
| 4. OUTPUT COVER | 20. EYE BOLT |
| 5. OUTPUT BEARING | 21. INPUT PINION |
| 6. OIL SEAL | 22. MOTOR SHAFT |
| 7. KEY | 23. BOLT |
| 8. OUTPUT SHAFT | 24. FLANGE |
| 9. PLUG FOR DRAIN/VENT | 25. INPUT GEAR |
| 10. INPUT COVER | 26. SNAP RING |
| 11. INPUT SHAFT | 27. KEY |
| 12. KEY | 28. OIL SEAL |
| 13. INPUT BEARING | 29. BEARING |
| 14. BOLT | 30. ELECTRIC MOTOR |
| 15. BOLT | 31. BRAKE |
| 16. BOLT | 32. COVER |

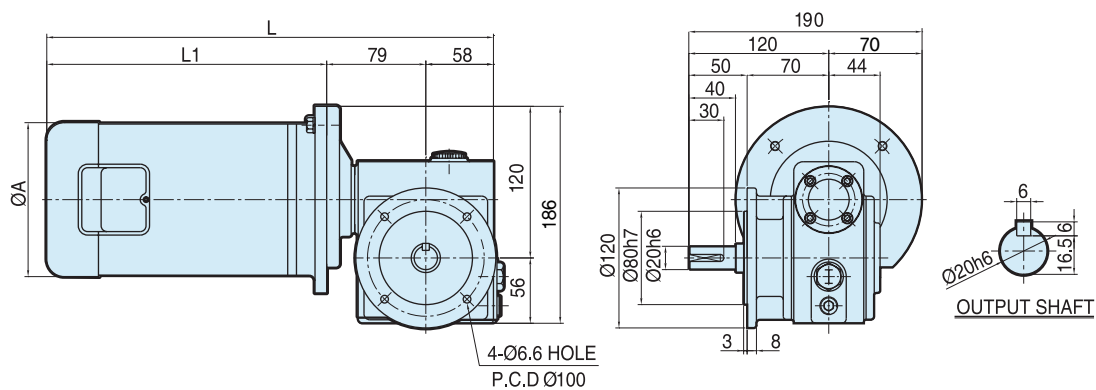
HW20

HORIZONTAL TYPE (WORM GEARED MOTOR)



Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW20HT	삼양	0.2kW(1/4Hp)	10, 20, 30, 40, 50, 60	177	314	114	14
	지멘스			179.5	316.5	124	14

VERTICAL TYPE (WORM GEARED MOTOR)

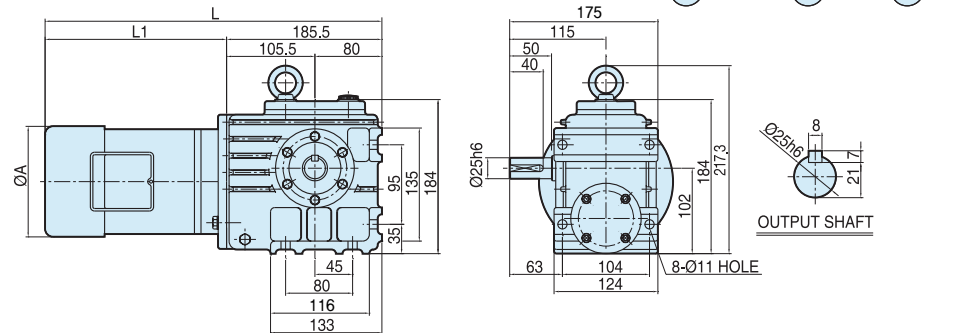


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW20VT	삼양	0.2kW(1/4Hp)	10, 20, 30, 40, 50, 60	177	314	114	14
	지멘스			179.5	316.5	124	14

SAMYANG MAX™ HW-SERIES

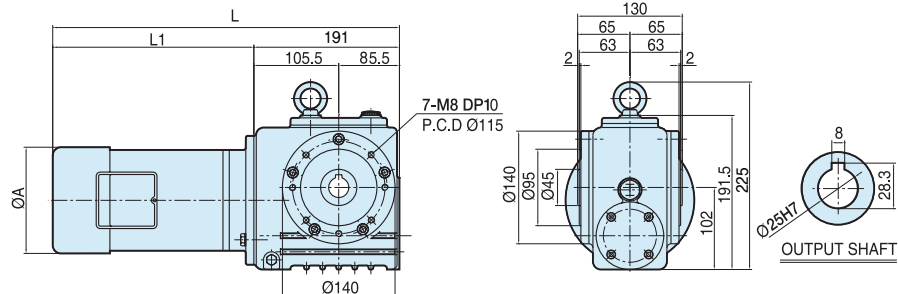
HW25

HORIZONTAL TYPE

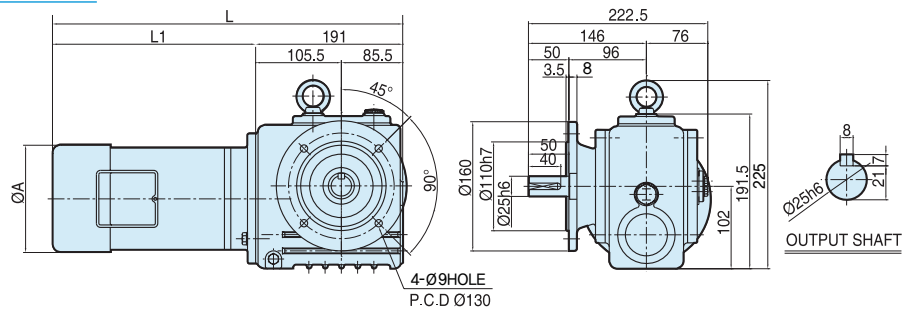


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW25HT	삼양	0.2kW(1/4Hp)	75, 90, 120, 150, 180	177	362.5	114	18
		0.4kW(1/2Hp)	40, 50, 60	216.5	402	132	23
		0.75kW(1Hp)	10, 20, 30	265.5	451	158	28
	지멘스	0.2kW(1/4Hp)	75, 90, 120, 150, 180	177.5	363	124	18
		0.4kW(1/2Hp)	40, 50, 60	210	395.5	145	23
	효성	0.75kW(1Hp)	10, 20, 30	259	444.5	176	28

HOLLOW SHAFT TYPE



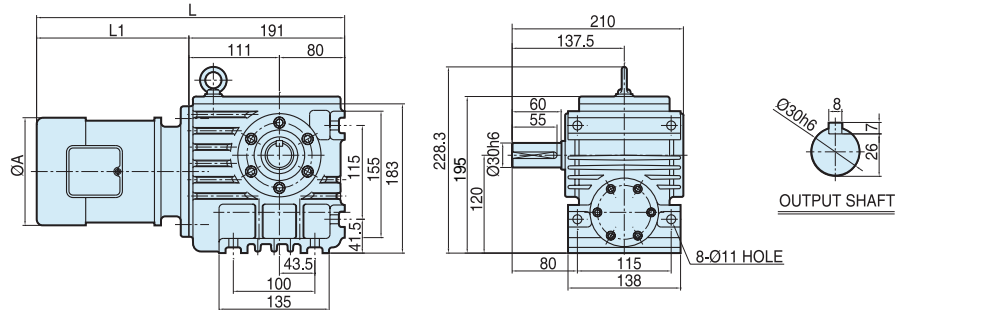
VERTICAL TYPE



Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW25VT HW25VH	삼양	0.2kW(1/4Hp)	75, 90, 120, 150, 180	177	368	114	18
		0.4kW(1/2Hp)	40, 50, 60	216.5	407.5	132	23
		0.75kW(1Hp)	10, 20, 30	265.5	456.5	158	28
	지멘스	0.2kW(1/4Hp)	75, 90, 120, 150, 180	177.5	368.5	124	18
		0.4kW(1/2Hp)	40, 50, 60	210	401	145	23
	효성	0.75kW(1Hp)	10, 20, 30	259	450	176	28

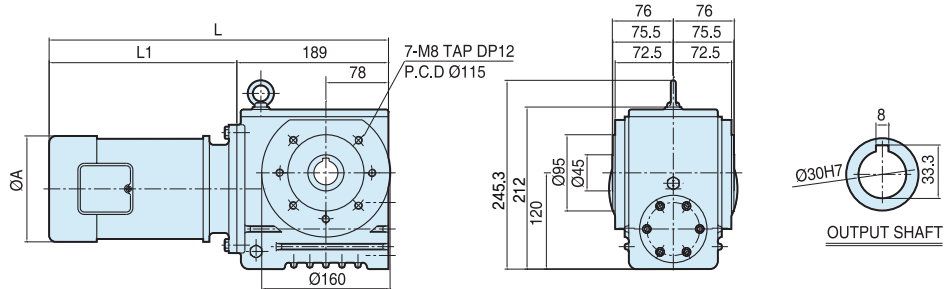
HW30

HORIZONTAL TYPE

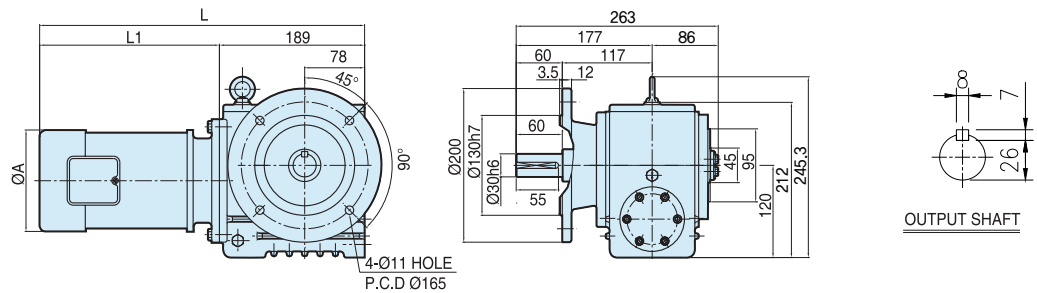


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW30HT	삼양	0.4kW(1/2Hp)	75, 90, 120, 150, 180	216.5	407.5	132	27
		0.75kW(1Hp)	40, 50, 60	265.5	456.5	158	32
		1.5kW(2Hp)	10, 20, 30	293.5	484.5	172	28
	지멘스	0.4kW(1/2Hp)	75, 90, 120, 150, 180	210	401	145	27
		0.75kW(1Hp)	40, 50, 60	259	450	176	32
	효성	1.5kW(2Hp)	10, 20, 30	317	508	196	28

HOLLOW SHAFT TYPE



VERTICAL TYPE

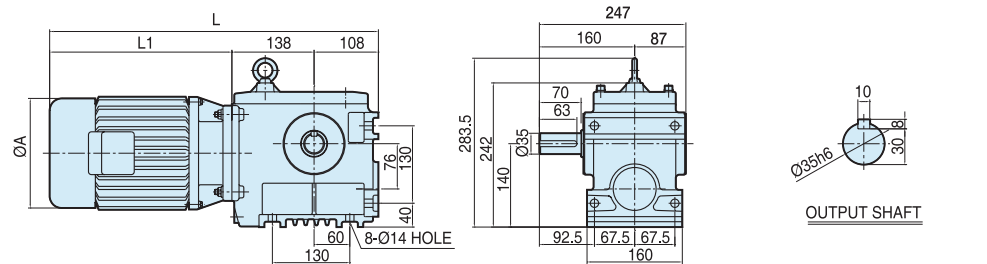


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW30VT HW30VH	삼양	0.4kW(1/2Hp)	75, 90, 120, 150, 180	216.5	405.5	132	27
		0.75kW(1Hp)	40, 50, 60	265.5	454.5	158	32
		1.5kW(2Hp)	10, 20, 30	293.5	482.5	172	28
	지멘스	0.4kW(1/2Hp)	75, 90, 120, 150, 180	210	399	145	27
		0.75kW(1Hp)	40, 50, 60	259	448	176	32
	효성	1.5kW(2Hp)	10, 20, 30	317	506	196	28

SAMYANG MAX™ HW-SERIES

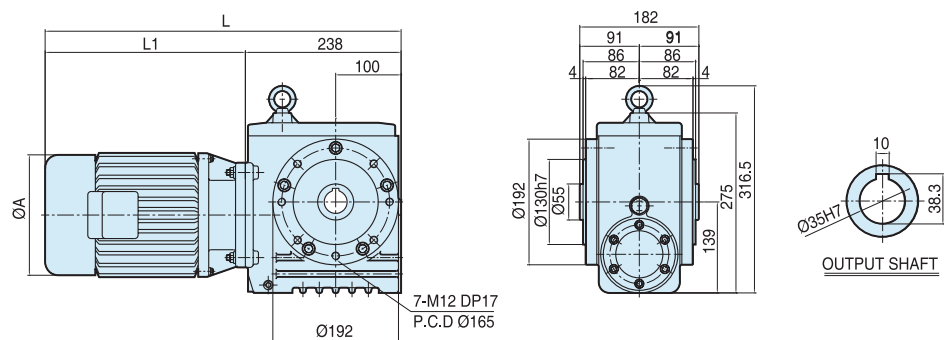
HW35

HORIZONTAL TYPE

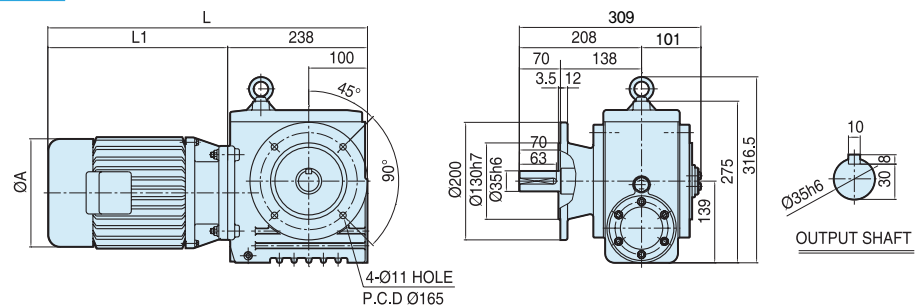


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW35HT	삼양	0.75kW(1Hp)	75, 90, 120, 150, 180	265.5	511.5	158	43
		1.5kW(2Hp)	40, 50, 60	293.5	539.5	172	49
		2.2kW(3Hp)	10, 20, 30	346	592	196.4	58
	효성	0.75kW(1Hp)	75, 90, 120, 150, 180	259	505	176	43
		1.5kW(2Hp)	40, 50, 60	317	563	196	49
		2.2kW(3Hp)	10, 20, 30	347	593	215	58

HOLLOW SHAFT TYPE



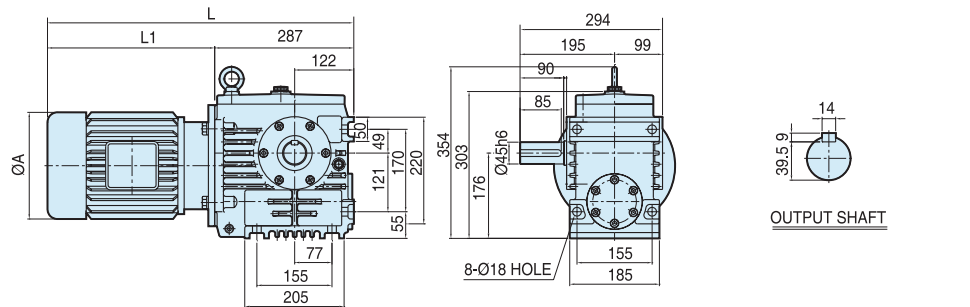
VERTICAL TYPE



Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW35VT HW35VH	삼양	0.75kW(1Hp)	75, 90, 120, 150, 180	265.5	503.5	132	46
		1.5kW(2Hp)	40, 50, 60	293.5	531.5	158	52
		2.2kW(3Hp)	10, 20, 30	346	584	172	61
	효성	0.75kW(1Hp)	75, 90, 120, 150, 180	259	497	145	46
		1.5kW(2Hp)	40, 50, 60	317	555	176	52
		2.2kW(3Hp)	10, 20, 30	347	585	196	61

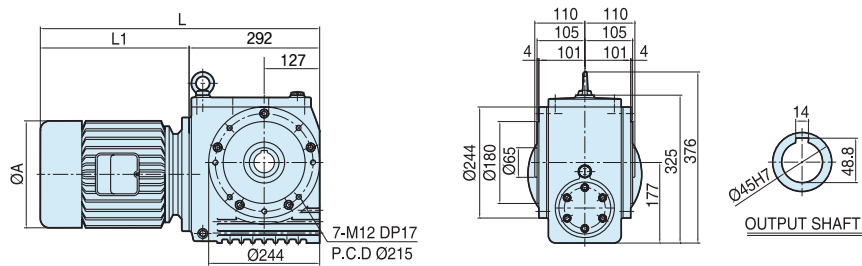
HW45

HORIZONTAL TYPE

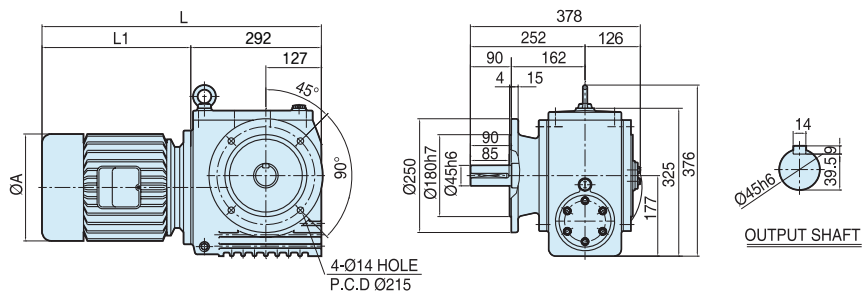


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW45HT	삼양	1.5kW(2Hp)	75, 90, 120, 150, 180	290	577	172	74
		2.2kW(3Hp)	40, 50, 60	307	594	196.4	72
		3.7kW(5Hp)	10, 20, 30	330	617	238.4	91
	효성	1.5kW(2Hp)	75, 90, 120, 150, 180	308	595	196	79
		2.2kW(3Hp)	40, 50, 60	346	633	215	88
		3.7kW(5Hp)	10, 20, 30	330	617	232	96

HOLLOW SHAFT TYPE



VERTICAL TYPE

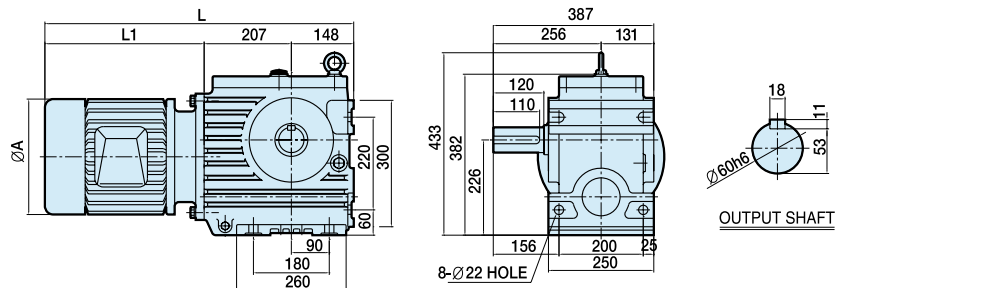


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW45VT HW45VH	삼양	1.5kW(2Hp)	75, 90, 120, 150, 180	290	582	172	82
		2.2kW(3Hp)	40, 50, 60	307	599	196.4	90
		3.7kW(5Hp)	10, 20, 30	330	622	238.4	99
	효성	1.5kW(2Hp)	75, 90, 120, 150, 180	308	600	196	87
		2.2kW(3Hp)	40, 50, 60	346	638	215	96
		3.7kW(5Hp)	10, 20, 30	330	622	232	104

SAMYANG MAX™ HW-SERIES

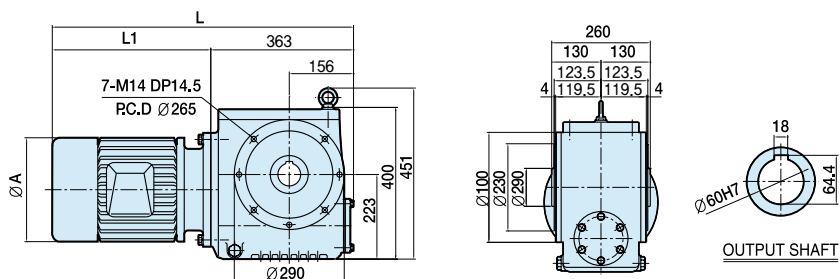
HW60

HORIZONTAL TYPE

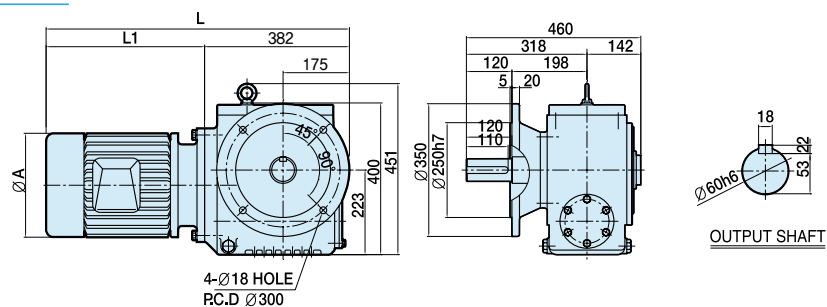


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW60HT	삼양	2.2kW(3Hp)	75, 90, 120, 150, 180	307	662	196.4	120
		3.7kW(5Hp)	40, 50, 60	330	685	238.4	131
	효성	2.2kW(3Hp)	75, 90, 120, 150, 180	346	701	218	136
		3.7kW(5Hp)	40, 50, 60	330	685	232	144
		5.5kW(7.5Hp)	10, 20, 30	379	734	270	161

HOLLOW SHAFT TYPE



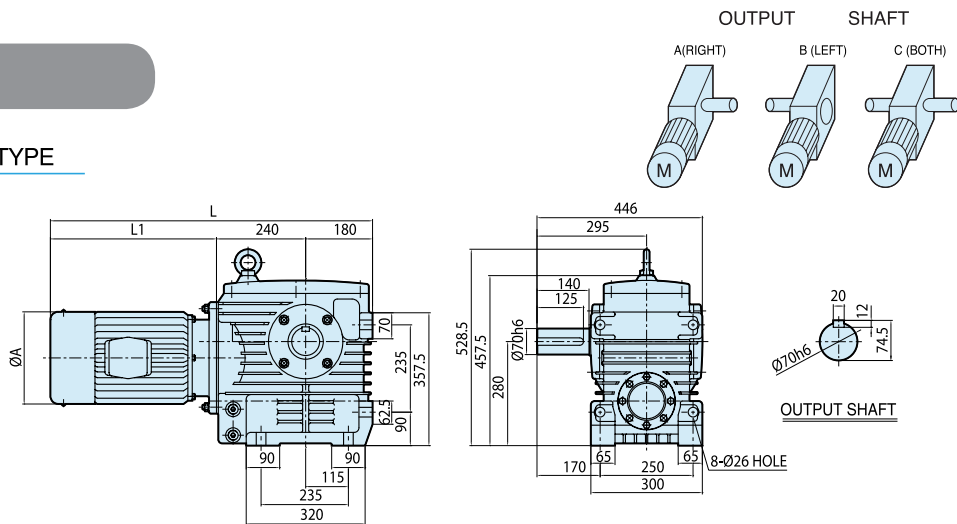
VERTICAL TYPE



Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW60VT HW60VH	삼양	2.2kW(3Hp)	75, 90, 120, 150, 180	307	689	196.4	138
		3.7kW(5Hp)	40, 50, 60	330	712	238.4	149
	효성	2.2kW(3Hp)	75, 90, 120, 150, 180	346	728	218	154
		3.7kW(5Hp)	40, 50, 60	330	712	232	162
		5.5kW(7.5Hp)	10, 20, 30	379	761	270	179

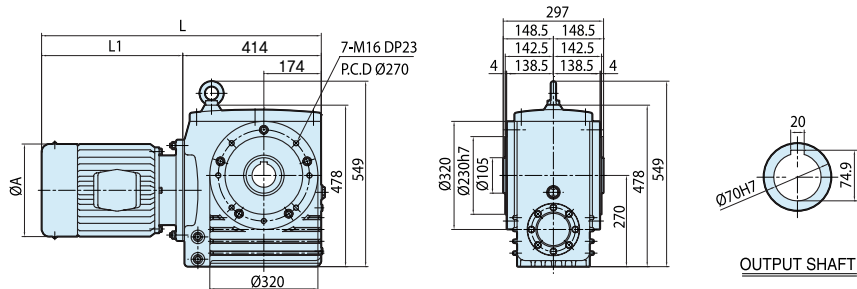
HW70

HORIZONTAL TYPE

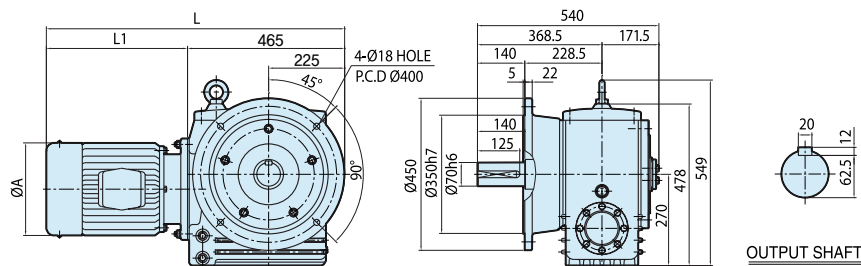


Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW70HT	효성	3.7kW(5Hp)	75, 90, 120, 150, 180	315	735	232	214
		5.5kW(7.5Hp)	40, 50, 60	379	799	270	231
		7.5kW(10Hp)	10, 20, 30	417	837	270	238

HOLLOW SHAFT TYPE

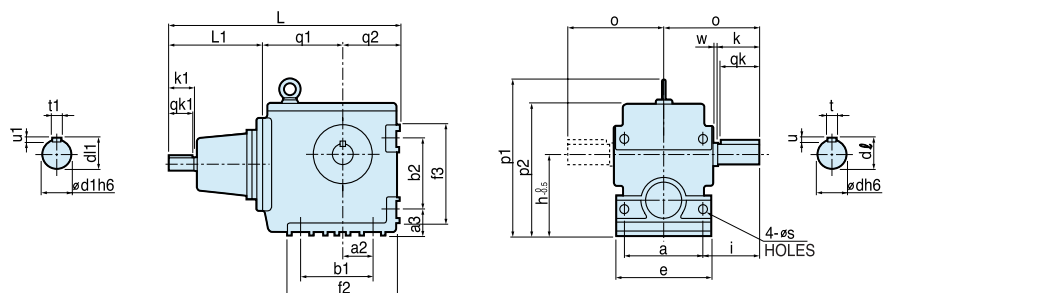


VERTICAL TYPE



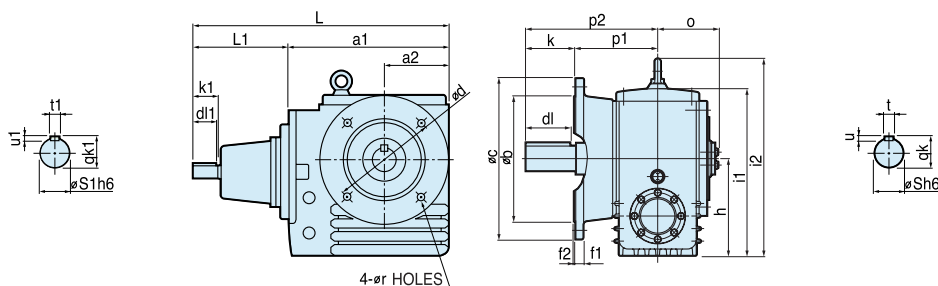
Type	Motor	Output	Ratio	L1	L	ØA	Weight(kg)
HW70VT HW70VH	효성	3.7kW(5Hp)	75, 90, 120, 150, 180	315	780	232	236
		5.5kW(7.5Hp)	40, 50, 60	379	844	270	253
		7.5kW(10Hp)	10, 20, 30	417	882	270	260

HORIZONTAL TYPE



Type	DIMENSION(mm)																						
	a	a2 a3	b1 b2	e	f2 f3	h	i	L	L1	O	p1 p2	q1 q2	s w	d	t u	qk	k	dl	d1	t1 u1	qk1	k1	dl1
HW25HL	104	45 35	80 95	124	116 135	102	63	300.5	115	115	217.3 184	105.5 80	11 5	25	8 7	40	50	28	16	5 5	36	40	18
HW30HL	115	43.5 41.5	100 115	138	135 155	120	80	306	115	137.5	228.3 195	111 80	11 5	30	8 7	55	60	33	16	5 5	36	40	18
HW35HL	135	60 40	130	160	175 175	140	92.5	366	120	160	228.5 242	138 108	14 3	35	10 8	63	70	38	19	6 6	36	40	21.5
HW45HL	155	77 55	155 170	185	205 220	176	117.5	427	140	195	354 303	165 122	18 6	45	14 9	85	90	48.5	28	8 7	40	50	31
HW60HL	200	90 60	180 220	250	260 300	226	156	495	140	256	433 382	207 148	22 5	60	18 11	110	120	64	32	10 8	50	60	35
HW70HL	250	115 90	235	300	340 304.5	280	170	640	220	295	528.5 457.5	240 180	26 3	70	20 12	125	140	74.5	40	12 8	70	80	43

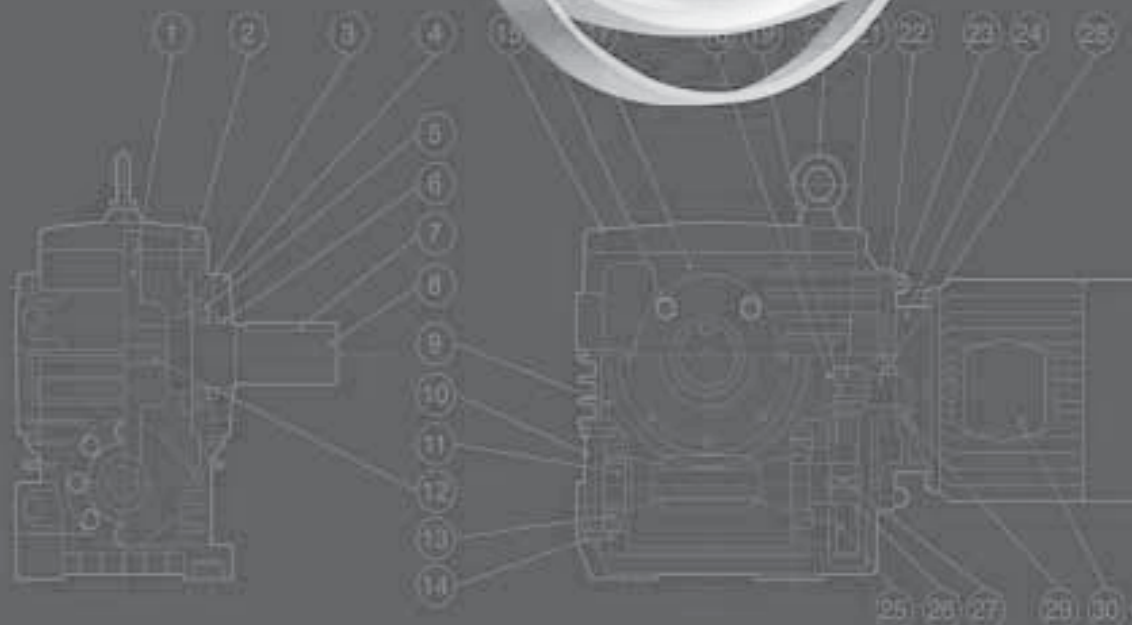
VERTICAL TYPE



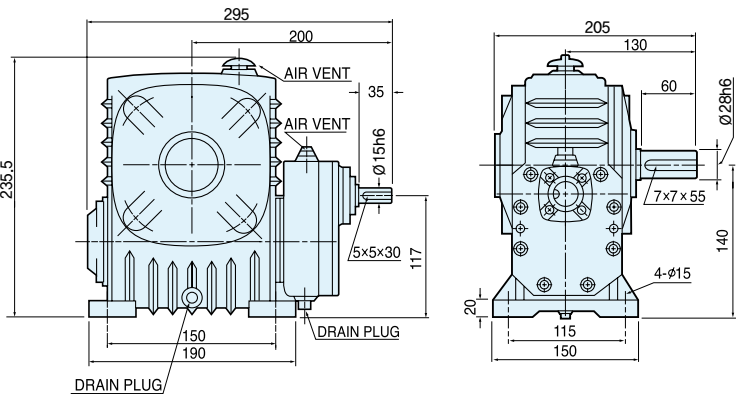
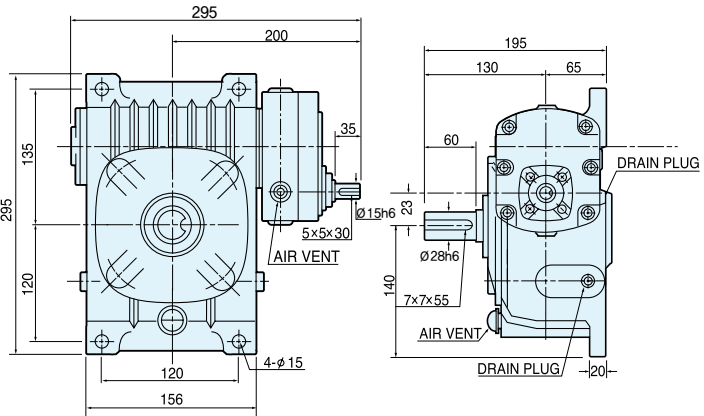
Type	DIMENSION(mm)																						
	a1 a2	b	c	d	f1 f2	h	i1 i2	L	L1	O	p1	p2	r	s	t u	dl	k	qk	S1	t1 u1	dl1	k1	qk1
HW25VL	191 89.5	110	160	130	8 3.5	102	191.5 225	306	115	76	96	146	9	25	8 7	40	50	28	16	5 5	36	40	18
HW30VL	189 78	130	200	165	12 3.5	120	212 245.3	304	115	86	117	177	11	30	8 7	55	60	33	16	5 5	36	40	18
HW35VL	238 100	130	200	165	12 3.5	139	275 316.5	358	120	101	138	208	11	35	10 8	63	70	38	19	6 6	36	40	21.5
HW45VL	292 127	180	250	215	15 4	177	325 376	432	140	126	162	252	14	45	14 9	85	90	48.5	28	8 7	40	50	31
HW60VL	363 156	250	350	300	20 5	223	400 451	503	140	142	198	318	18	60	18 11	110	120	64	32	10 8	50	60	35
HW70VL	414 174	350	450	400	22 5	270	478 549	634	220	171.5	228.5	368.5	18	70	20 12	125	140	74.5	40	12 8	70	80	43

MAX-21 BWP/ VWP Series

MAX-31 BMB\AMB Series



Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-70	A B C	
 VWP-70	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

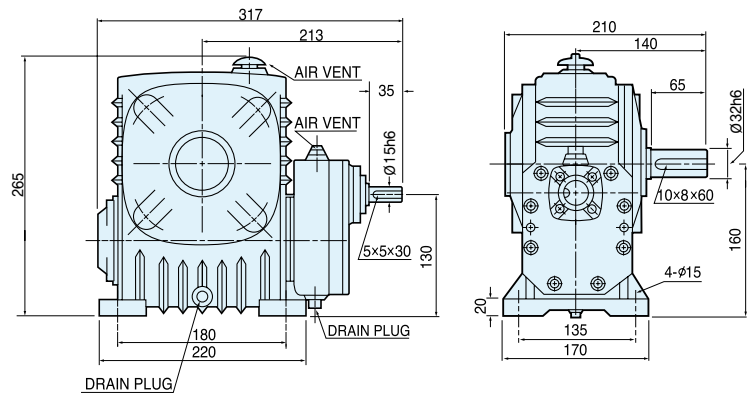
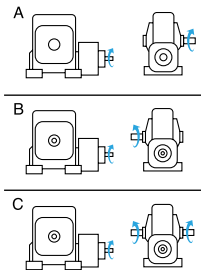
INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	0.82	0.44	14.4	260	0.74	0.39	15.2	260	0.65	0.34	16.2	260
1/90	0.91	0.52	18.6	259	0.80	0.45	19.6	260	0.70	0.38	20.8	260
1/100	0.67	0.34	14.1	260	0.60	0.31	14.8	260	0.52	0.26	15.7	260
1/120	0.65	0.34	16.2	260	0.57	0.29	17.0	260	0.50	0.24	17.8	260
1/150	0.52	0.26	15.7	260	0.46	0.23	16.3	260	0.41	0.18	17.3	260
1/180	0.42	0.18	13.2	260	0.36	0.16	13.9	260	0.33	0.13	14.7	260

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	0.55	0.27	17.4	260	0.42	0.20	19.3	260	0.26	0.15	22.5	260
1/90	0.57	0.30	22.1	260	0.42	0.20	22.7	260	0.22	0.14	22.7	260
1/100	0.43	0.21	16.7	260	0.34	0.15	18.5	260	0.21	1.00	21.5	260
1/120	0.42	0.20	19.3	260	0.32	0.14	21.1	260	0.18	1.00	22.7	260
1/150	0.34	0.15	18.5	260	0.26	0.10	20.2	260	0.16	0.07	22.7	260
1/180	0.28	0.10	15.8	260	0.22	0.08	17.2	260	0.13	0.06	19.5	260

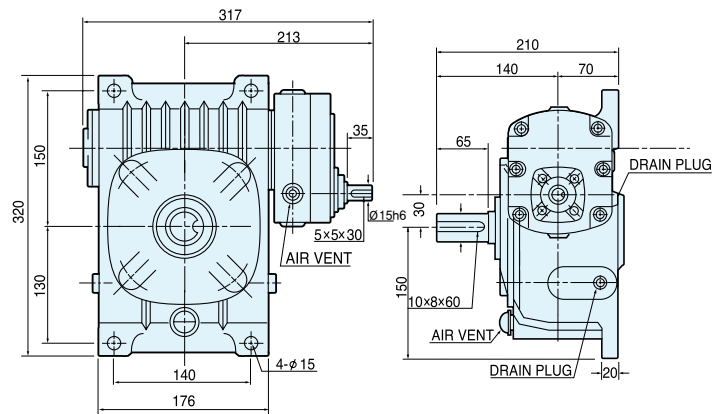
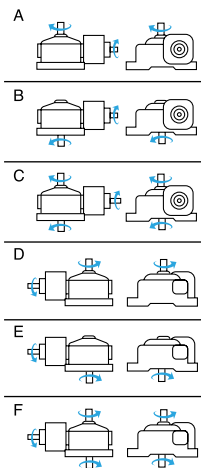
MODEL	축배치 및 회전방향	도면
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BWP-80



VWP-80



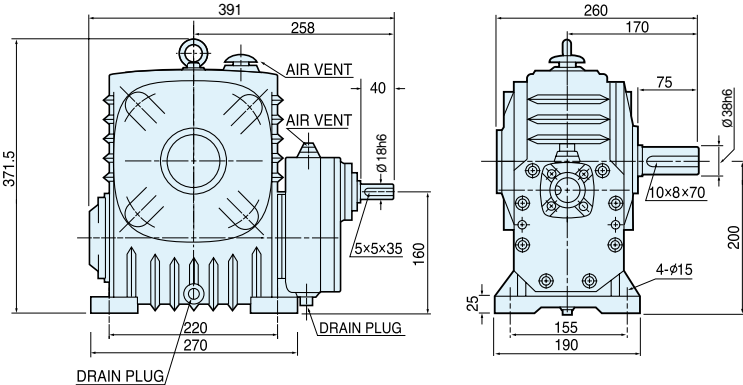
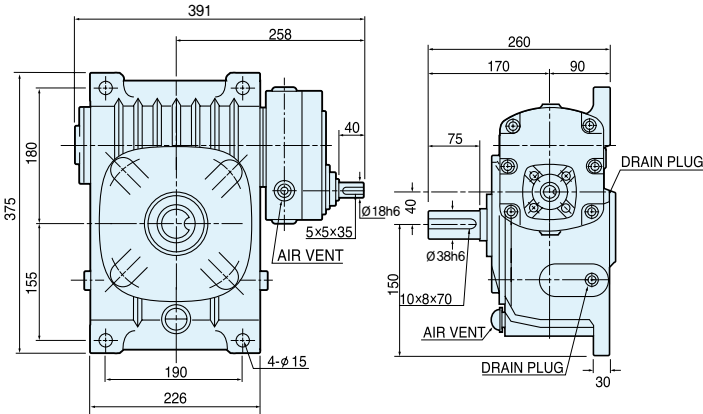
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	1.27	0.68	22.2	400	1.13	0.60	23.4	400	1.00	0.52	25.0	400
1/90	1.40	0.80	28.7	398	1.24	0.69	30.2	400	1.08	0.59	32.0	400
1/100	1.03	0.53	21.7	400	0.92	0.48	22.9	400	0.80	0.40	24.2	400
1/120	1.00	0.52	25.0	400	0.88	0.44	26.2	400	0.77	0.37	27.5	400
1/150	0.80	0.40	24.2	400	0.71	0.35	25.1	400	0.63	0.28	26.7	400
1/180	0.64	0.28	20.4	400	0.56	0.24	21.4	400	0.51	0.20	22.7	400

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	0.84	0.41	26.9	400	0.65	0.31	29.8	400	0.40	0.17	34.6	400
1/90	0.88	0.47	34.0	400	0.64	0.32	35.0	400	0.33	0.16	35.0	400
1/100	0.67	0.32	25.8	400	0.52	0.23	28.5	400	0.32	0.12	33.1	400
1/120	0.65	0.31	29.8	400	0.49	0.21	32.5	400	0.28	0.12	35.0	400
1/150	0.52	0.23	28.5	400	0.40	0.16	31.1	400	0.24	0.08	35.0	400
1/180	0.43	0.16	24.3	400	0.33	0.12	26.5	400	0.20	0.08	30.1	400

Helical Worm Reducer/헬리컬웜 감속기

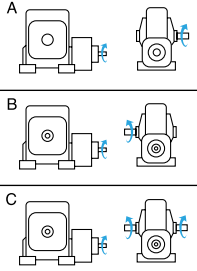
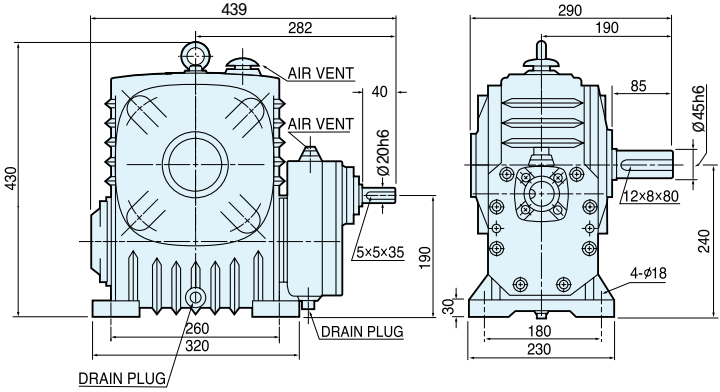
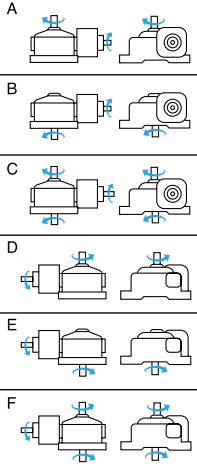
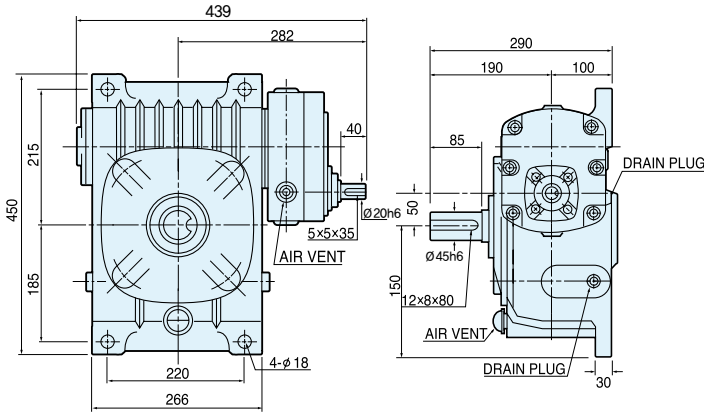
MODEL	축배치 및 회전방향	도면
 BWP-100	A B C	
 VWP-100	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	2.32	1.39	44.5	397	2.08	1.21	46.8	423	1.81	1.04	50.0	457
1/90	2.37	1.39	50.0	382	2.01	1.16	50.0	405	1.64	0.92	50.0	440
1/100	1.76	1.00	40.2	458	1.59	0.88	42.4	487	1.37	0.75	44.7	528
1/120	1.81	1.04	50.0	457	1.53	0.87	50.0	488	1.27	0.68	50.0	550
1/150	1.37	0.75	44.7	528	1.20	0.64	46.6	564	1.07	0.55	49.4	611
1/180	1.12	0.57	42.0	583	1.00	0.51	44.0	622	0.88	0.43	46.6	650

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	1.40	0.77	50.0	521	0.97	0.52	50.0	623	0.52	0.25	50.0	650
1/90	1.28	0.68	50.0	538	0.88	0.45	50.0	643	0.48	0.23	50.0	650
1/100	1.13	0.60	47.8	586	0.84	0.40	50.0	650	0.45	0.20	50.0	650
1/120	0.97	0.52	50.0	623	0.68	0.33	50.0	650	0.36	0.16	50.0	650
1/150	0.84	0.40	50.0	650	0.57	0.27	50.0	650	0.32	0.13	50.0	650
1/180	0.72	0.33	49.8	650	0.51	0.23	50.0	650	0.27	0.12	50.0	650

MODEL	축배치 및 회전방향	도면
 BWP-120		
 VWP-120		

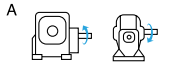
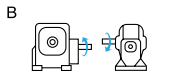
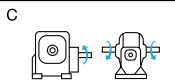
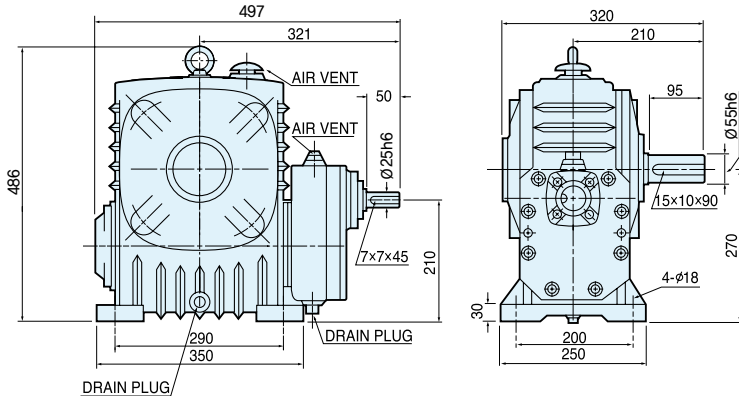
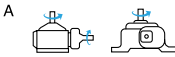
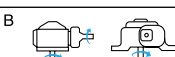
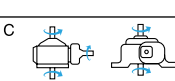
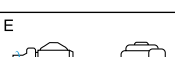
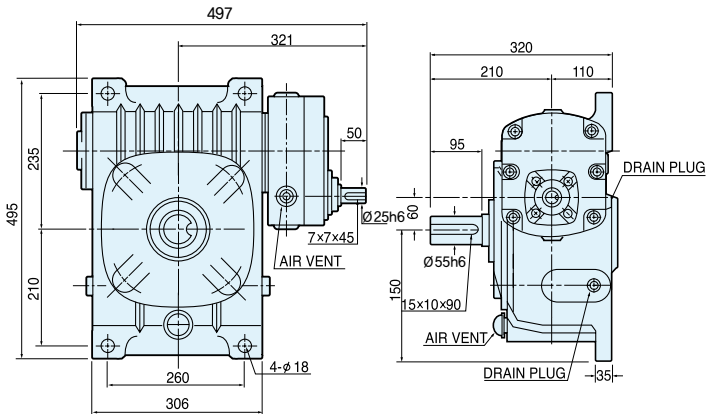
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	3.45	2.03	64.8	446	3.13	1.80	68.8	475	2.80	1.52	73.3	514
1/90	4.23	2.33	83.9	408	3.32	1.95	84.0	435	2.72	1.56	84.0	473
1/100	2.87	1.72	68.7	508	2.60	1.52	72.6	541	2.23	1.28	76.5	588
1/120	2.80	1.52	73.3	514	2.51	1.33	76.7	550	2.16	1.12	80.9	599
1/150	2.23	1.28	76.5	588	1.96	1.11	79.9	629	1.71	0.92	84.0	682
1/180	1.80	0.93	67.5	662	1.63	0.83	71.5	704	1.41	0.69	75.5	763

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	2.35	1.23	78.6	573	1.75	0.88	84.0	664	0.96	0.44	84.0	926
1/90	2.09	1.16	84.0	531	1.47	0.77	84.0	619	0.80	0.39	84.0	974
1/100	1.85	1.03	82.2	653	1.32	0.69	84.0	778	0.71	0.35	84.0	1000
1/120	1.75	0.88	84.0	665	1.24	0.57	84.0	815	0.68	0.28	84.0	1000
1/150	1.32	0.69	84.0	778	0.92	0.45	84.0	928	0.49	0.23	84.0	1000
1/180	1.19	0.56	81.1	846	0.87	0.39	84.0	996	0.47	0.19	84.30	1000

Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-135	A  B  C 	
 VWP-135	A  B  C  D  E  F 	

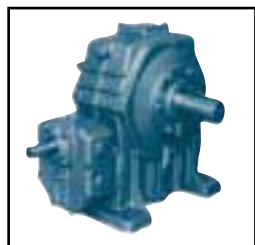
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

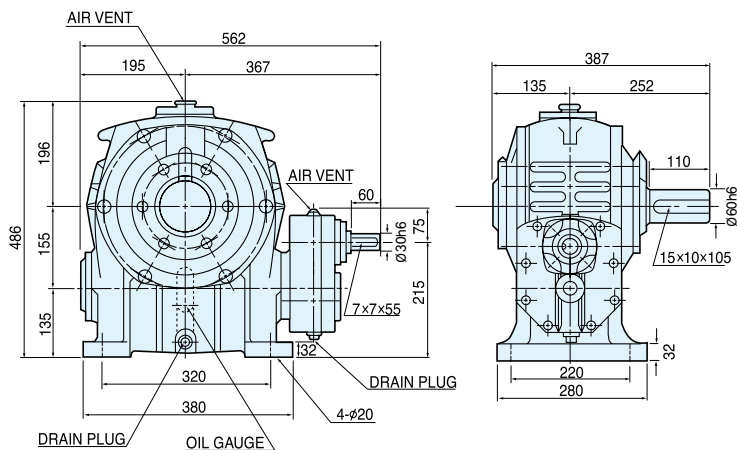
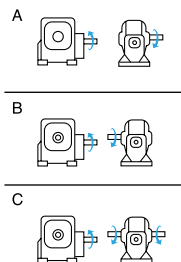
INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	5.12	3.27	104	707	4.61	2.85	109	755	4.07	2.44	117	814
1/90	5.60	3.49	125	670	5.03	3.08	132	714	4.35	2.60	140	775
1/100	3.84	2.35	93.6	819	3.48	2.07	99.0	871	3.01	1.75	104	944
1/120	4.67	2.44	117	814	3.60	2.12	122	872	3.09	1.80	128	947
1/150	3.01	1.75	104	944	2.67	1.52	109	1008	2.32	1.28	115	1092
1/180	2.36	1.28	92.6	1053	2.12	1.13	98.0	1120	1.84	0.96	103	1200

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	3.35	1.96	125	906	2.60	1.44	138	1051	1.40	0.72	140	1200
1/90	3.33	1.95	140	866	2.33	1.29	140	1085	1.24	0.64	140	1200
1/100	2.49	1.40	112	1046	1.93	1.04	124	1200	1.17	0.57	140	1200
1/120	2.60	1.44	138	1051	1.80	0.96	140	1200	0.96	0.48	140	1200
1/150	1.93	1.04	124	1200	1.47	0.75	135	1200	0.81	0.39	140	1200
1/180	1.55	0.76	111	1200	1.17	0.56	121	1200	0.72	0.32	140	1200

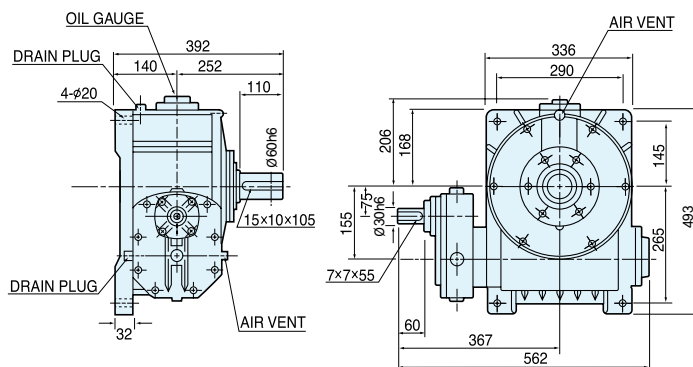
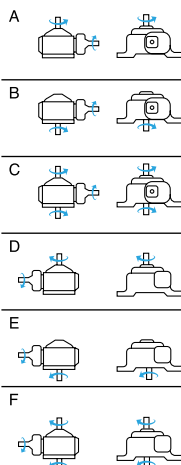
MODEL 축배치 및 회전방향 도 면



BWP-155



VWP-155



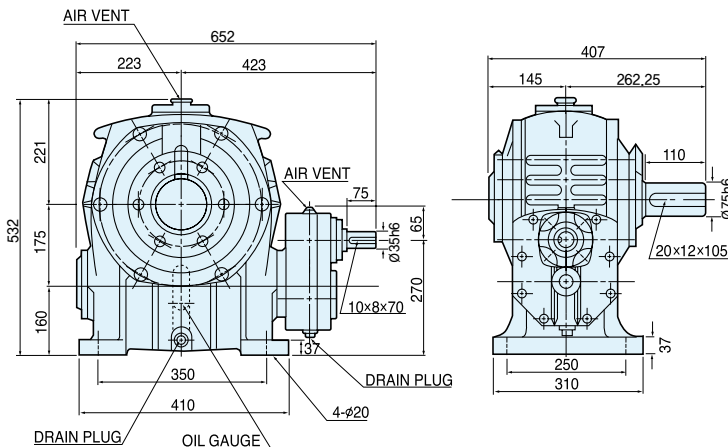
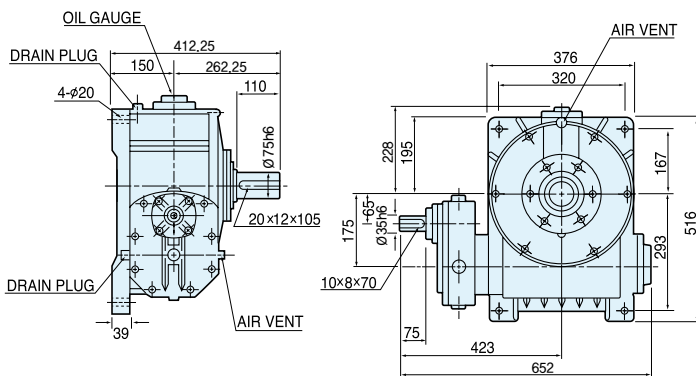
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	6.71	4.22	134	1500	6.03	3.74	142	1500	5.37	3.19	152	1500
1/90	7.74	4.87	168	1500	7.00	4.26	177	1500	6.18	3.65	189	1500
1/100	5.23	3.17	126	1500	4.70	2.78	132	1500	4.17	2.37	141	1500
1/120	5.37	3.19	152	1500	4.83	2.80	160	1500	4.17	2.35	168	1500
1/150	4.17	2.37	141	1500	3.70	2.04	146	1500	3.27	1.76	157	1500
1/180	3.42	1.87	133	1500	3.08	1.64	141	1500	2.68	1.39	149	1500

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	4.50	2.57	163	1500	3.47	1.91	182	1500	2.23	1.12	214	1500
1/90	5.10	2.92	202	1500	3.92	2.16	225	1500	2.31	1.16	242	1500
1/100	3.49	1.90	151	1500	2.70	1.41	168	1500	1.73	0.82	197	1500
1/120	3.47	1.91	182	1500	2.72	1.41	202	1500	1.71	0.81	233	1500
1/150	2.70	1.41	168	1500	2.10	1.03	183	1500	1.31	0.59	212	1500
1/180	2.24	1.12	160	1500	1.73	0.81	173	1500	1.08	0.46	200	1500

Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-175	A B C	
 VWP-175	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

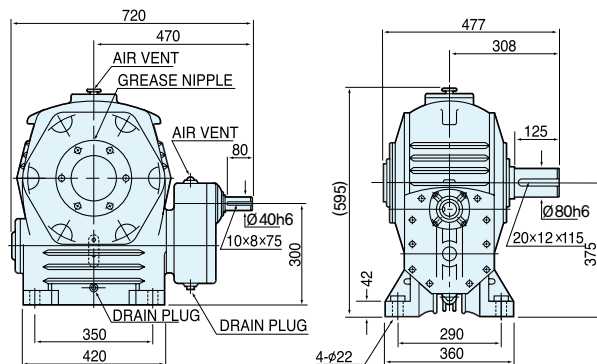
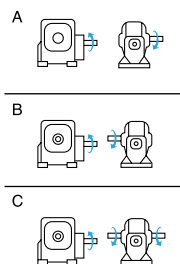
INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	9.58	6.12	190	1800	8.64	5.43	202	1800	7.59	4.65	216	1800
1/90	10.9	7.04	243	1800	9.90	6.21	258	1800	8.72	5.29	274	1800
1/100	7.10	4.32	171	1800	6.31	3.77	180	1800	5.64	3.25	194	1800
1/120	7.59	4.45	216	1800	6.88	4.08	228	1800	5.95	3.43	239	1800
1/150	5.64	3.25	194	1800	5.08	2.83	203	1800	4.46	2.41	215	1800
1/180	4.76	2.70	187	1800	4.25	2.35	195	1800	3.73	2.01	208	1800

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	6.47	3.78	234	1800	5.01	3.78	234	1800	3.21	1.65	307	1800
1/90	7.20	4.23	293	1800	5.58	3.14	326	1800	3.18	1.66	345	1800
1/100	4.72	2.59	206	1800	3.70	1.94	231	1800	2.38	1.14	272	1800
1/120	5.01	2.80	261	1800	3.89	2.06	288	1800	2.45	1.19	333	1800
1/150	3.70	1.94	231	1800	2.89	1.43	255	1800	1.81	0.82	293	1800
1/180	3.10	1.62	224	1800	2.40	1.18	246	1800	1.49	0.67	280	1800

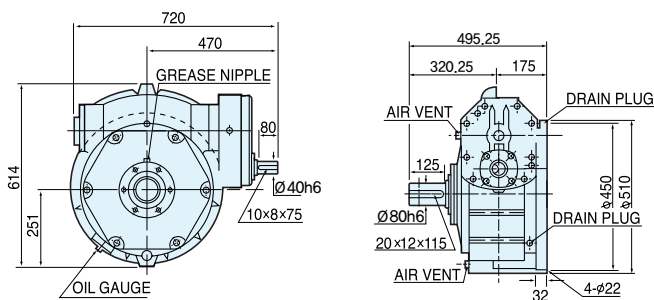
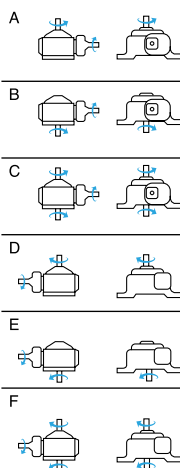
MODEL 축배치 및 회전방향 도 면



BWP-200



VWP-200



전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	13.2	8.62	274	2200	11.8	7.61	290	2200	10.2	6.43	307	2200
1/90	14.2	9.32	345	2200	12.8	8.19	363	2200	11.3	6.99	388	2200
1/100	9.94	6.21	247	2200	8.91	5.48	261	2200	7.84	4.67	280	2200
1/120	10.2	6.43	307	2200	9.41	5.73	328	2200	8.18	4.83	346	2200
1/150	7.84	4.69	280	2200	7.05	4.08	292	2200	6.19	3.46	310	2200
1/180	6.54	3.77	265	2200	5.87	3.27	276	2200	5.18	2.80	296	2200

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	8.84	5.30	337	2200	6.89	3.94	376	2200	4.40	2.32	443	2200
1/90	9.39	5.60	414	2200	7.26	4.17	46.3	2200	4.13	2.19	488	2200
1/100	6.62	3.76	299	2200	5.16	2.80	334	2200	3.31	1.64	393	2200
1/120	6.89	3.94	376	2200	5.31	2.90	415	2200	3.33	1.67	480	2200
1/150	5.16	2.80	334	2200	4.02	2.06	369	2200	2.51	1.18	424	2200
1/180	4.31	2.26	318	2200	3.35	1.65	350	2200	5.11	0.94	400	2200

Helical Worm Reducer/헬리컬웜 감속기

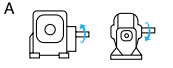
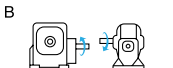
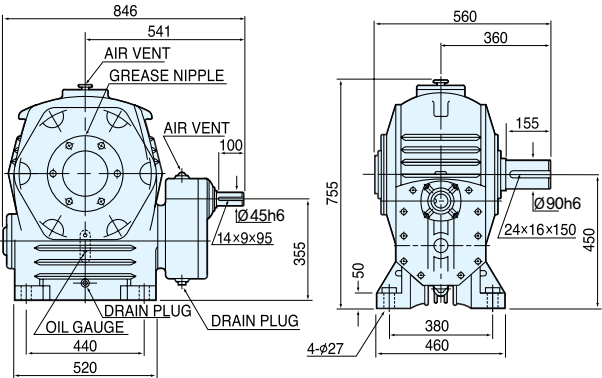
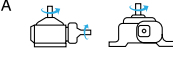
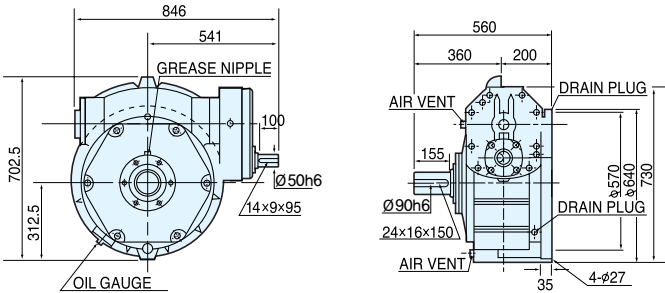
MODEL	축배치 및 회전방향	도면
 BWP-225	A B C	
 VWP-225	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	18.8	12.5	399	2500	16.8	11.0	420	2500	14.5	9.36	447	2500
1/90	21.0	14.2	508	2500	18.8	12.5	537	2500	16.5	10.6	574	2500
1/100	13.8	8.96	356	2500	12.4	7.90	377	2500	10.8	6.77	404	2500
1/120	14.5	9.36	447	2500	13.3	8.34	478	2500	11.5	7.04	504	2500
1/150	10.8	6.77	404	2500	9.76	5.88	421	2500	8.53	5.00	447	2500
1/180	8.95	5.35	370	2500	8.05	4.66	387	2500	7.12	3.98	414	2500

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	12.4	7.67	488	2500	9.73	5.72	546	2500	6.20	3.37	644	2500
1/90	13.6	8.54	611	2500	10.5	6.36	684	2500	5.68	3.21	690	2500
1/100	9.15	5.43	432	2500	7.11	4.04	482	2500	4.53	2.37	567	2500
1/120	9.73	5.72	546	2500	7.47	4.21	604	2500	4.62	2.40	690	2500
1/150	7.11	4.04	482	2500	5.51	2.98	533	2500	3.42	1.71	612	2500
1/180	5.89	3.20	443	2500	4.59	2.35	489	2500	2.86	1.35	561	2500

MODEL	축배치 및 회전방향	도면
 BWP-250	A  B  C 	
 VWP-250	A  B  C  D  E  F 	

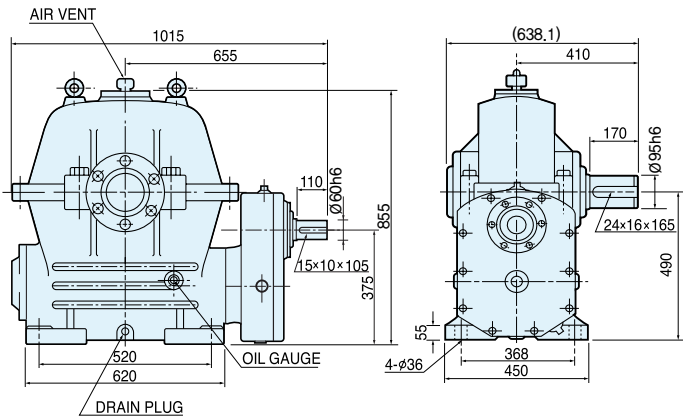
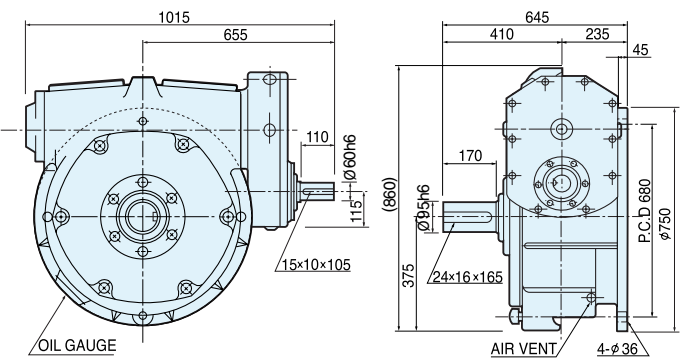
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	24.4	16.4	537	2700	21.2	14.0	549	2700	18.4	11.8	587	2700
1/90	25.6	17.6	633	2700	23.6	15.6	670	2700	20.8	13.3	722	2700
1/100	16.9	11.0	458	2700	15.2	9.73	483	2700	13.0	8.22	511	2700
1/120	18.4	11.8	587	2700	16.5	10.6	623	2700	14.4	8.94	657	2700
1/150	13.0	8.22	511	2700	11.6	7.24	539	2700	10.4	6.12	571	2700
1/180	11.2	6.88	493	2700	10.0	5.98	515	2700	8.90	5.12	551	2700

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	15.6	9.8	639	2700	12.2	7.29	715	2700	7.76	4.29	843	2700
1/90	17.3	10.8	774	2700	13.2	7.90	850	2700	7.12	3.94	850	2700
1/100	11.0	6.68	553	2700	8.68	4.96	617	2700	5.53	2.92	726	2700
1/120	12.2	7.29	715	2700	9.36	5.36	789	2700	5.44	2.88	850	2700
1/150	8.68	4.96	617	2700	6.70	3.65	683	2700	4.17	2.09	784	2700
1/180	7.38	4.12	591	2700	5.70	3.02	651	2700	3.54	1.72	746	2700

Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-300	A B C	
 VWP-300	A B C D E F	

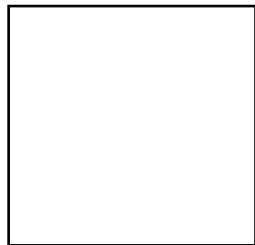
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

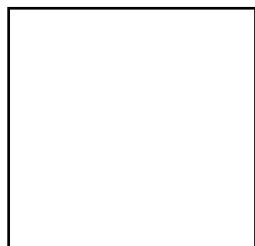
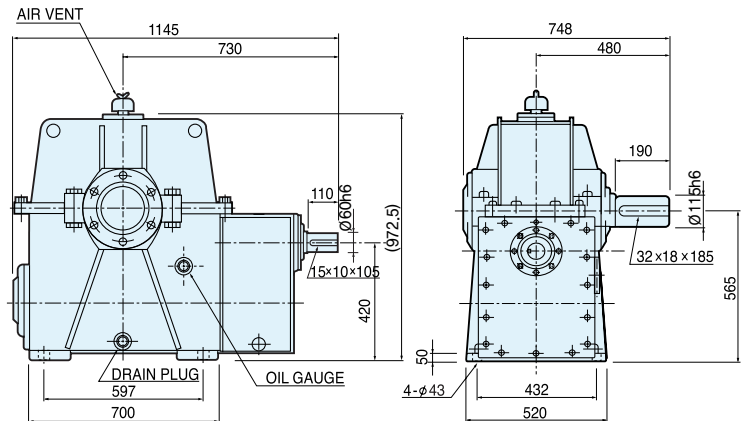
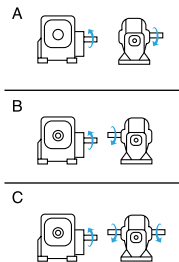
INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	37.2	26.1	853	3800	33.7	23.2	910	3800	29.4	19.8	974	3800
1/90	38.4	27.0	973	3800	34.2	23.8	1034	3800	29.7	20.4	1103	3800
1/100	30.4	20.8	828	3800	25.8	17.3	833	3800	22.5	14.8	885	3800
1/120	29.4	19.8	975	3800	26.0	17.3	1020	3800	22.8	14.8	1093	3800
1/150	22.5	14.8	885	3800	19.7	12.8	925	3800	17.4	10.9	986	3800
1/180	17.6	11.2	808	3800	15.8	9.86	858	3800	14.0	8.4	904	3800

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	24.2	16.0	1049	3800	19.2	12.0	1181	3800	10.5	6.13	1200	3800
1/90	25.0	16.5	1192	3800	17.4	11.0	1200	3800	9.33	5.60	1200	3800
1/100	18.8	12.0	961	3800	14.9	8.93	1070	3800	9.06	5.06	1200	3800
1/120	19.3	12.0	1182	3800	13.6	8.13	1200	3800	7.33	4.00	1200	3800
1/150	14.9	8.93	1071	3800	11.3	6.53	1179	3800	6.26	3.33	1200	3800
1/180	11.7	6.80	977	3800	8.93	4.93	1078	3800	5.46	2.80	1200	3800

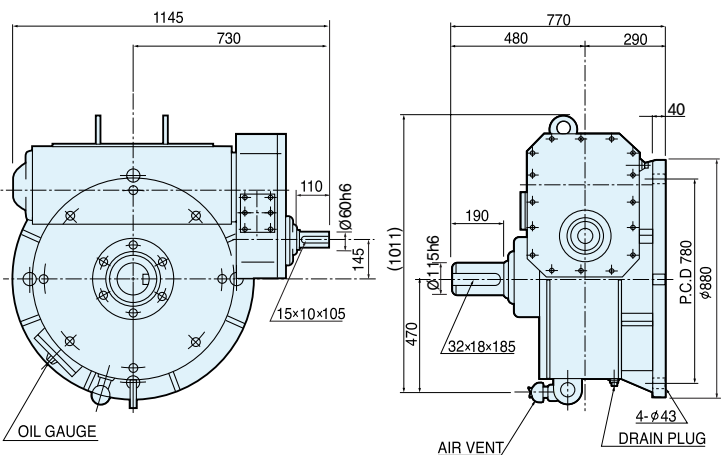
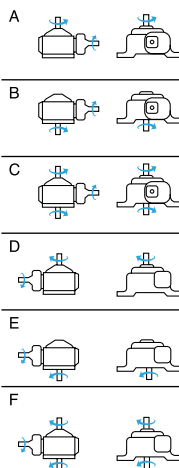
MODEL 축배치 및 회전방향 도 면



BWP-350



VWP-350



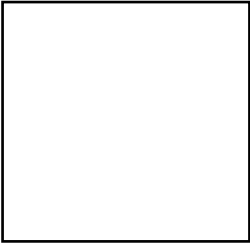
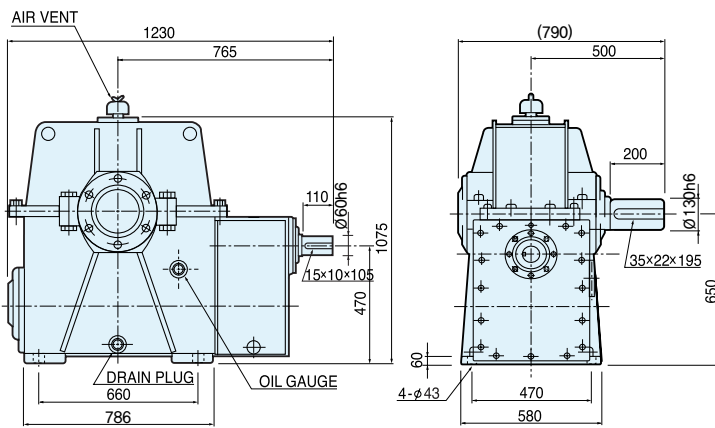
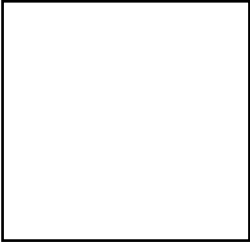
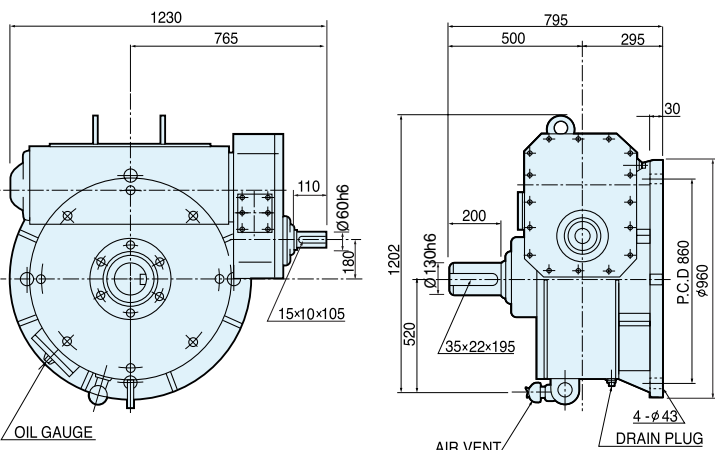
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	55.8	39.4	1289	5100	53.3	37.3	1464	5100	43.6	29.8	1465	5100
1/90	55.0	39.0	1450	5100	49.7	34.6	1545	5100	42.6	29.3	1635	5100
1/100	43.6	30.4	1187	5100	39.4	27.0	1266	5100	34.4	23.0	1350	5100
1/120	43.6	29.8	1466	5100	39.2	26.4	1555	5100	33.7	22.4	1644	5100
1/150	34.4	23.0	1350	5100	30.4	20.1	1417	5100	26.8	17.3	1519	5100
1/180	26.5	17.3	1244	5100	23.8	15.3	1321	5100	20.8	12.9	1392	5100

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	36.5	24.4	1593	5100	28.5	18.1	1769	5100	15.4	9.2	1800	5100
1/90	36.0	24.0	1785	5100	25.3	16.1	1800	5100	13.6	8.13	1800	5100
1/100	28.4	18.6	1464	5100	22.6	14.0	1638	5100	13.3	7.6	1800	5100
1/120	28.2	18.0	1771	5100	20.1	12.2	1800	5100	10.8	6.13	1800	5100
1/150	22.6	14.0	1640	5100	17.2	10.2	1800	5100	9.33	5.06	1800	5100
1/180	17.6	10.5	1507	5100	13.4	7.73	1659	5100	7.86	4.13	1800	5100

Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-400	A B C	
 VWP-400	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	76.4	54.2	1843	7000	68.1	48.0	1958	7000	60.4	41.7	2131	7000
1/90	66.1	46.5	1697	7000	59.0	41.3	1808	7000	52.0	35.6	1948	7000
1/100	60.2	42.4	1690	7000	54.8	38.1	1823	7000	47.4	32.2	1928	7000
1/120	61.2	41.8	2128	7000	54.1	36.4	2219	7000	46.9	31.0	2365	7000
1/150	47.6	32.4	1924	7000	42.4	28.4	2031	7000	37.0	24.4	2180	7000
1/180	38.1	25.4	1795	7000	34.2	22.5	1910	7000	29.7	19.0	2018	7000

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	49.8	33.6	2289	7000	38.8	25.0	2552	7000	24.9	14.9	2580	7000
1/90	43.0	28.6	2096	7000	33.7	21.4	2347	7000	21.6	12.8	2580	7000
1/100	39.7	26.4	2106	7000	31.3	19.7	2346	7000	19.7	11.6	2580	7000
1/120	39.3	25.0	2549	7000	30.8	18.6	2580	7000	19.4	10.9	2580	7000
1/150	31.2	19.7	2343	7000	23.8	14.4	2574	7000	15.0	8.40	2580	7000
1/180	25.2	15.4	2181	7000	19.2	11.3	2396	7000	12.0	6.50	2580	7000

MODEL	축배치 및 회전방향	도면
BWP-450		
VWP-450		

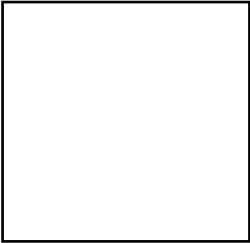
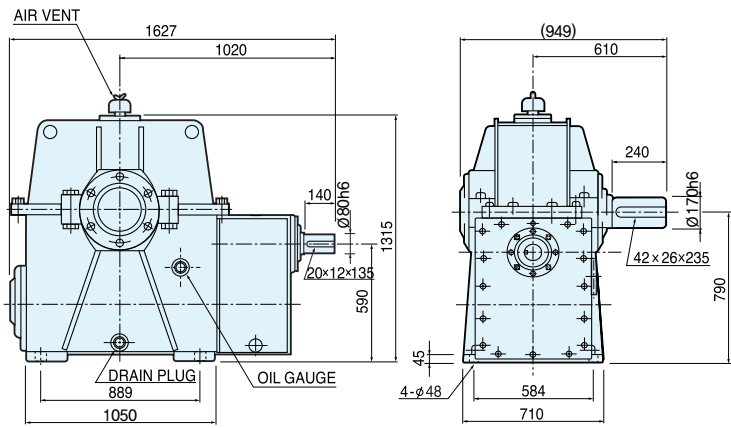
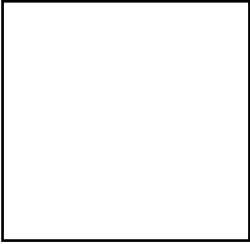
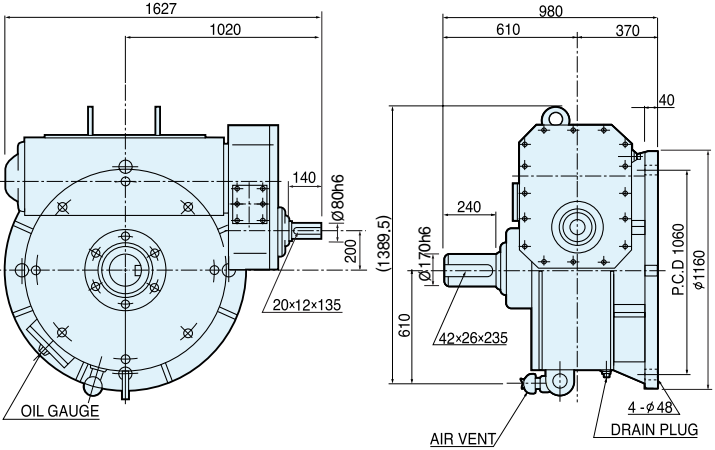
전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	106	75.6	2466	9020	94.8	67.2	2631	9380	82.9	58.2	2580	10000
1/90	88.8	62.9	2351	9690	79.0	55.6	2498	10000	69.2	48.0	2695	10000
1/100	81.4	57.8	2346	9940	72.9	51.4	2506	10000	63.7	44.0	2676	10000
1/120	82.5	58.0	2855	10000	74.1	51.0	3014	10000	64.1	43.3	3194	10000
1/150	63.3	43.7	2678	10000	56.4	38.2	2809	10000	49.4	33.0	3031	10000
1/180	50.9	34.2	2426	10000	46.4	30.6	2597	10000	40.0	26.0	2760	10000

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	69.2	47.2	3080	10000	49.8	32.9	3230	10000	27.2	16.5	3230	10000
1/90	58.0	39.0	2920	10000	44.4	28.8	3230	10000	24.0	14.4	3230	10000
1/100	53.2	35.8	2916	10000	41.2	26.5	3230	10000	22.1	13.2	3230	10000
1/120	49.7	32.9	3230	10000	35.2	21.8	3230	10000	18.9	10.9	3230	10000
1/150	41.0	26.4	3230	10000	28.6	17.6	3230	10000	15.4	8.8	3230	10000
1/180	34.1	21.2	2995	10000	25.7	15.2	3230	10000	13.8	7.6	3230	10000

Helical Worm Reducer/헬리컬웜 감속기

MODEL	축배치 및 회전방향	도면
 BWP-500	A B C	
 VWP-500	A B C D E F	

전동능력표

수치는 1일 8~10시간 연속 운전이고 균일 하중의 수치입니다.

INPUT rpm RATIO	1800				1500				1200			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	141.2	103.0	3370	13000	126.1	91.4	3593	13000	110.1	79.2	3888	13000
1/90	115.0	82.8	3032	13000	102.9	73.4	3229	13000	89.8	63.6	3496	13000
1/100	101.4	71.7	2958	13000	90.5	63.4	3144	13000	79.3	54.9	3401	13000
1/120	111.0	80	3879	13000	99.6	70.4	4092	13000	85.8	59.6	4333	13000
1/150	79.8	55.4	3391	13000	70.8	48.1	3532	13000	62.4	41.6	3822	13000
1/180	66.5	45.2	3314	13000	60.8	40.4	3552	13000	52.2	34.2	3769	13000

INPUT rpm RATIO	900				600				300			
	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf	INPUT HP	OUTPUT HP	OUTPUT T kgf-m	OUTPUT O.H.L kgf
1/80	90.6	63.3	4232	13000	71.0	48.4	4750	13000	45.3	28.5	5608	13000
1/90	74.0	50.8	3800	13000	58.1	38.8	4249	13000	37.0	22.8	5028	13000
1/100	66.0	44.2	3735	13000	50.9	33.0	4093	13000	32.9	19.6	4876	13000
1/120	71.7	48.9	4737	13000	55.8	36.1	5256	13000	32.9	19.8	5780	13000
1/150	51.2	33.3	4073	13000	40.4	24.8	4551	13000	25.4	14.5	5303	13000
1/180	44.0	27.7	4061	13000	33.6	20.1	4426	13000	21.0	11.7	5159	13000