



**EXAMEN PARCIAL I**  
**01 de Marzo del 2007**

**PROBLEMA UNICO:**

1.- Proponer una alternativa de diseño que permita acoplar de forma directa un motor ABB 280MB con una bomba centrífuga KSB KWP 80-400 que consumirá 30Kw a 1800 RPM.

**NOTA 1:** Tomar en cuenta (solamente para efectos de dimensionamiento final de las bridas de acople), que se desea utilizar 6 tornillos de 1/2 pulgada para acoplarlas entre sí.

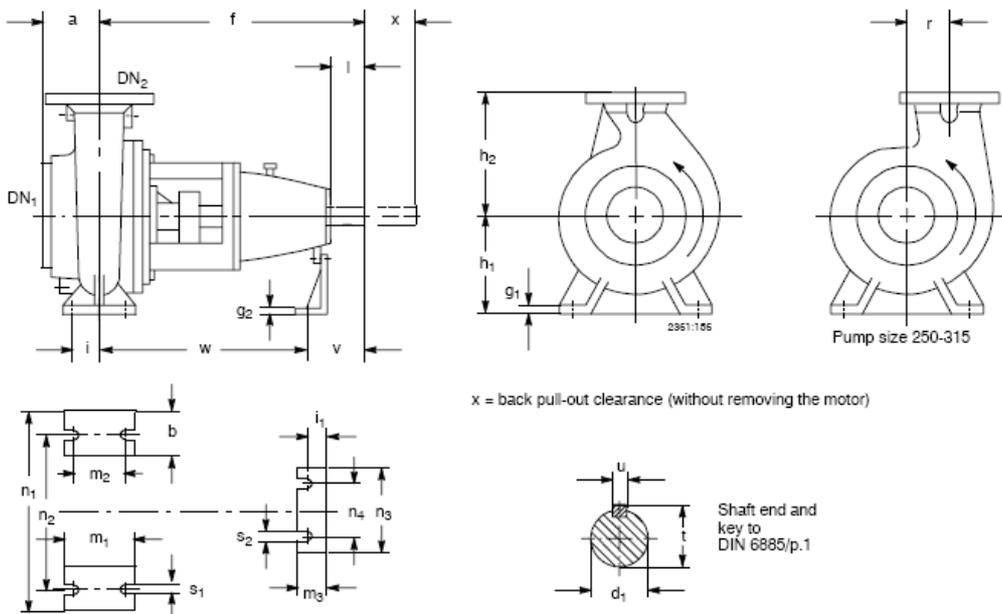
**NOTA 2:** El diseño incluye la elaboración de los dibujos normalizados necesarios para la fabricación de las piezas  
 2.- Proponer una alternativa de diseño modificado si se desea aprovechar al máximo el acople diseñado en el punto anterior para acoplar el mismo motor con una bomba KWP 40-250 que va a estar exigiendo 15 HP a 1200 RPM



**KWP**

**Dimensions**

Pump sizes on bearing brackets P03x to P06x



x = back pull-out clearance (without removing the motor)

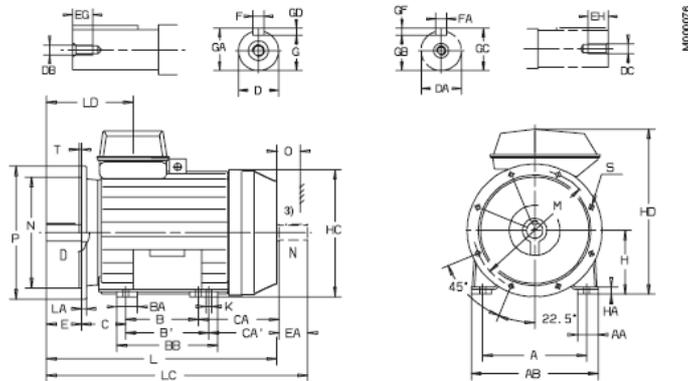
Pump size	Bearing bracket	Pump dimensions																Shaft end					Foot dimensions							
		DN <sub>1</sub>	DN <sub>2</sub>	a	b	f	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	m <sub>1</sub>	m <sub>2</sub>	n <sub>1</sub>	n <sub>2</sub>	r	d	l	t	u	x	i	i <sub>1</sub>	m <sub>2</sub>	n <sub>2</sub>	n <sub>4</sub>	s <sub>1</sub>	s <sub>2</sub>	v	w	
40-250 40-315	P 03ax	65	40	100	65	500	16	4	180	225	125	48	320	160	-	32	80	35.3	10	100	47.5	30	95	250	110	16	14	130	370	
	P 04ax	80	40	125	80	530	18	6	225	250	160	48	400	160	-	42	110	45.1	12	140	60	33	120	315	110	18	14	160	370	
50-200,201 50-400	P 03ax	65	50	112	50	500	14	4	160	200	100	48	265	160	-	32	80	35.3	10	100	35	30	70	212	110	14	14	130	370	
	P 04ax	80	50	120	80	530	18	6	280	325	160	48	435	160	-	42	110	45.1	12	140	60	33	120	355	110	19	14	160	370	
65-200,201 65-315,311,313 65-400	P 03ax	80	65	125	65	500	16	4	180	225	125	48	320	160	-	32	80	35.3	10	120	47.5	30	95	250	110	14	14	130	370	
	P 04ax	80	65	140	80	530	18	6	225	280	160	48	400	160	-	42	110	45.1	12	120	60	33	120	315	110	18	14	160	370	
80-250,251 80-315,311 80-400,403 80-500	P 03ax	100	80	125	80	500	18	6	225	280	160	48	400	160	-	32	80	35.3	10	120	60	30	120	315	110	18	14	130	370	
	P 04ax	100	80	140	80	530	18	6	225	280	160	48	400	160	-	42	110	45.1	12	120	60	33	120	315	110	19	14	160	370	
100-250,251,253 100-315 100-400,403	P 05ax	100	80	140	80	670	18	12	280	355	160	60	435	200	-	48	110	51.5	14	120	60	39	120	355	140	18	18	170	500	
	P 06x	125	80	140	100	720	24	12	355	450	200	60	550	200	-	60	140	64.2	18	160	75	39	150	450	140	23	18	205	515	
125-500,503	P 06x	150	125	160	100	720	24	12	355	450	200	60	550	200	-	60	140	64.2	18	160	75	39	150	450	140	23	18	205	515	
	P 05ax	150	150	180	100	670	22	12	315	400	200	60	550	200	-	48	110	51.5	14	160	75	39	150	450	140	23	18	170	500	
150-315,311 150-400	P 05ax	150	150	160	100	670	22	12	315	450	200	60	550	200	-	48	110	51.5	14	160	75	39	150	450	140	23	18	170	500	
	P 05ax	150	150	160	100	670	22	12	315	450	200	60	550	200	-	48	110	51.5	14	160	75	39	150	450	140	23	18	170	500	
200-320 200-400,403	P 05ax	200	200	200	100	697	22	12	355	450	200	60	550	200	-	48	110	51.5	14	160	75	39	150	450	140	22	18	170	527	
	P 06x	200	200	180	100	720	24	12	355	500	200	60	550	200	-	60	140	64.2	18	160	75	39	150	450	140	23	18	205	515	
250-315	P 06x	250	250	215	130	720	26	12	500	400	260	60	800	200	315	60	140	64.2	18	160	95	39	190	670	140	26	18	205	515	

# General purpose steel motors

# Sizes 280-315

## Dimension drawings

Foot- and flange-mounted; IM B35 (IM 2001), IM V15 (IM 2011), IM V36 (IM 2031) – terminal box top mounted



Motor size	Poles	A	AA	AB	B	B'	BA	BB	C	CA	CA'	D	DA	DB	DC	E	EA	EG	EH	F	FA
280 SA	2	457	80	545	368	-	100	501	190	372	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	457	80	545	368	-	100	501	190	302	-	75	65	M20	M20	140	140	40	40	20	18
280 SMA	2	457	80	545	368	419	100	501	190	372	321	65	60	M20	M20	140	140	40	40	18	18
	4-8	457	80	545	368	419	100	501	190	372	321	75	65	M20	M20	140	140	40	40	20	18
280 MB	2	457	80	545	419	-	100	501	190	381	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	457	80	545	419	-	100	501	190	381	-	75	65	M20	M20	140	140	40	40	20	18
280 MC,MD2	2	457	80	545	419	-	100	501	190	381	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	457	80	545	419	-	100	501	190	381	-	75	65	M20	M20	140	140	40	40	20	18
315 SA	2	508	100	622	406	-	100	539	216	343	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	508	100	622	406	-	100	539	216	343	-	80	75	M20	M20	170	140	40	40	22	20
315 SMA	2	508	100	622	406	457	100	539	216	443	392	65	60	M20	M20	140	140	40	40	18	18
	4-8	508	100	622	406	457	100	539	216	343	292	80	75	M20	M20	170	140	40	40	22	20
315 MB	2	508	100	622	457	-	100	539	216	392	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	508	100	622	457	-	100	539	216	392	-	80	75	M20	M20	170	140	40	40	22	20
315 LA	2	508	100	622	508	-	100	592	216	411	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	508	100	622	508	-	100	592	216	411	-	90	75	M24	M20	170	140	48	40	25	20
315 LB,LC	2	508	100	622	508	-	100	592	216	411	-	65	60	M20	M20	140	140	40	40	18	18
	4-8	508	100	622	508	-	100	592	216	411	-	90	75	M24	M20	170	140	48	40	25	20

Motor size	Poles	G	GA	GB	GC	GD	GF	H	HA	HC	HD	K	L	LA	LC	LD	M	N	O	P	S	T
280 SA	2	58	69	53	64	11	11	280	32	558	730	24	1060	22	1210	385	500	450	100	550	18	5
	4-8	67.5	79.5	58	69	12	11	280	32	558	730	24	990	22	1140	385	500	450	100	550	18	5
280 SMA	2	58	69	53	64	11	11	280	32	558	730	24	1060	22	1210	385	500	450	100	550	18	5
	4-8	67.5	79.5	58	69	12	11	280	32	558	730	24	1060	22	1210	385	500	450	100	550	18	5
280 MB	2	58	69	53	64	11	11	280	32	558	730	24	1120	22	1270	385	500	450	100	550	18	5
	4-8	67.5	79.5	58	69	12	11	280	32	558	730	24	1120	22	1270	385	500	450	100	550	18	5
280 MC	2	58	69	53	64	11	11	280	32	558	730	24	1255	22	1405	385	500	450	100	550	18	5
	4-8	67.5	79.5	58	69	12	11	280	32	558	730	24	1225	22	1405	385	500	450	100	550	18	5
280 MD	2	58	69	53	64	11	11	280	32	558	730	24	1255	22	1405	385	500	450	100	550	18	5
	4-8	67.5	79.5	58	69	12	11	280	32	558	730	24	1255	22	1405	385	500	450	100	550	18	5
315 SA	2	58	69	53	64	11	11	315	32	627	820	28	1095	25	1245	390	600	550	115	660	23	6
	4-8	71	85	67.5	79.5	14	12	315	32	627	820	28	1125	25	1275	420	600	550	115	660	23	6
315 SMA	2	58	69	53	64	11	11	315	32	627	820	28	1195	25	1345	390	600	550	115	660	23	6
	4-8	71	85	67.5	79.5	14	12	315	32	627	820	28	1125	25	1275	420	600	550	115	660	23	6
315 MB	2	58	69	53	64	11	11	315	32	627	820	28	1195	25	1345	390	600	550	115	660	23	6
	4-8	71	85	67.5	79.5	14	12	315	32	627	820	28	1225	25	1375	420	600	550	115	660	23	6
315 LA	2	58	69	53	64	11	11	315	32	627	820	28	1265	25	1415	390	600	550	115	660	23	6
	4-8	81	95	67.5	79.5	14	12	315	32	627	820	28	1295	25	1445	420	600	550	115	660	23	6
315 LB	2	58	69	53	64	11	11	315	32	627	820	28	1545	25	1695	390	600	550	115	660	23	6
	4-8	81	95	67.5	79.5	14	12	315	32	627	820	28	1575	25	1725	420	600	550	115	660	23	6
315 LC	2	58	69	53	64	11	11	315	32	627	848	28	1545	25	1695	390	600	550	115	660	23	6
	4	81	95	67.5	79.5	14	12	315	32	627	848	28	1575	25	1725	420	600	550	115	660	23	6

Tolerances:

A, B	ISO js14	H	ISO 0, -1.0
D, DA	ISO m6	N	ISO j6
F, FA	ISO h9		

<sup>1)</sup> Dimensions for 4-pole motors also valid for 4/6- and 4-8 -pole two-speed motors.

<sup>2)</sup> Cooling distance.

<sup>3)</sup> Second shaft end on request.

Above dimensions are in mm.

For detailed drawings please see our web-pages [www.abb.com/motors&drives](http://www.abb.com/motors&drives) or contact us.