

# CEN

*Centrifugal Pumps*



**PT TORISHIMA GUNA INDONESIA**

### GENERAL

CEN series are industrial pumps of back pull out design according to JIS B8313.

### APPLICATIONS

- General water supply, irrigation and drainage
- Pumping of sea water, brine, alkali and condensate
- Circulating hot and cold water supply
- Sprinkling & fire fighting system
- Swimming Pool

### DESIGN

- End suction volute pumps with vertical centerline discharge
- Back Pull Out (BPO) design allows the removal all rotating elements without disturbing the casing, piping or motor

### MATERIAL EXPLANATION

Bronze of BC2 or BC6 quality is recommended for sea water application or other corrosive media

### IMPELLER

- Closed, radial flow impeller fitted with protective wear ring
- Balanced hydraulically
- Trimming of impeller is possible

### BEARINGS

- Permanent lubricated grease ball bearings
- Oil lubricated bearing (*see option*)

### SHAFT SEALS

- Strong stuffing boxes
- Single acting mechanical seal are available

### FLANGES

- JIS 10 k F.F
- Optional with other flanges connection standard

### DRIVE

Electric motors and engines are also available on request

### DIRECTION OF ROTATION

Clockwise viewed from the drive end



### PUMP SPECIFICATION

SPECIFICATION		STANDARD	OPTION *
CAPACITY		Up to 620 m <sup>3</sup> /h (170 l/s)	
TOTAL HEAD		Up to 100 m	
Product Temperature		-10°C to 100°C	-30°C - 120°C
Pump Discharge Pressure		Up to 10 bar	
Pump Size		32 mm to 150 mm	
MATERIAL	Volute Casing	Cast Iron FC250	Ductile FCD400/ Bronze BC6
	Casing Cover	Cast Iron FC250	Ductile FCD400/ Bronze BC6
	Bearing Housing	Cast Iron FC250	
	Impeller	Cast Iron FC200	Ductile FCD400/ Bronze BC6
	Shaft	Martensitic Steel SUS420J2	SUS316/SUS304
	Casing Wear Ring	Cast Iron FC200	Bronze BC6
	Impeller Wear Ring	Cast Iron FC200	Bronze BC6
	Shaft Protection Sleeve	Martensitic Steel SUS420J2	Austenitic Steel SUS304/316
Seal		Gland Packing	Mechanical Seal
Ball Bearing		Deep Groove	Open type
Lubrication		Grease	Oil

\* all material combination within above mentioned material specification is possible

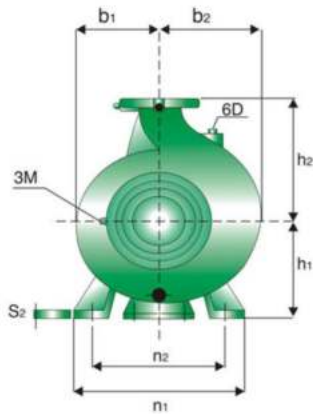
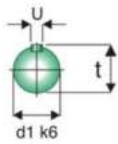
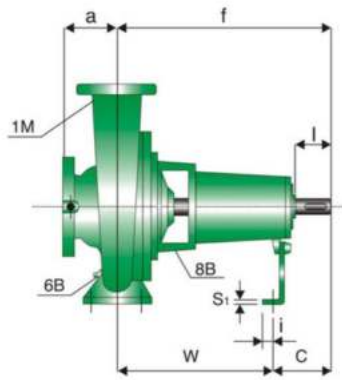
### SECTIONAL DRAWING & LIST COMPONENT

PART NO.	PART DESIGNATION	MATERIAL	QTY
1020	Volute Casing	FC 250	1
1610	Casing Cover	FC 250	1
1830	Support Foot	SS 400	1
2100	Shaft	SUS 420J2	1
2300	Impeller	FC 200	1
3210.1	Ball Bearing	No. 63 - C3	1
3210.2	Ball Bearing	No. 63 - C3	1
3300	Bearing Housing	FC 250	1
3600.1	Bearing Cover	ADC 12	1
3600.2	Bearing Cover	ADC 12	1
4000.1	Flat Gasket	Valqua 6500	1
4000.2	Flat Gasket	Valqua 6500	1
4000.3	Flat Gasket	Valqua 6500	1
4230.1	Labyrinth Ring	Plastic	1
4230.2	Labyrinth Ring	Plastic	1
4520	Gland	FC 200	1
4540	Gland Bush	FC 200	1
4580	Lantern Ring	FC 200	1
4610	Gland Packing	Non Asbestos	3
5020	Casing Wearing	FC 200	1
5030	Impeller Wearing	FC 200	1
5240	Shaft Protecting Sleeve	SUS 420J2	1
5500	Washer Impeller *	SUS 304	1
9021	Gland Bolt	SUS 304	2
9201	Fine Hexagonal Nut	SS 400	1
9300	Spring Washer	SUS 304	1
9400.1	Key	S45C	1
9400.2	Key **	S45C	1



\* Only use on Pump size with code ( \* )

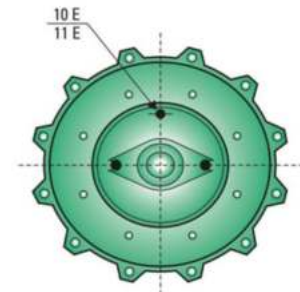
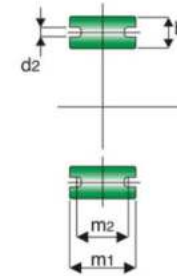
\*\* There are 2 size (each size 1 pc/unit pump) for Pump size with code ( \*\* )



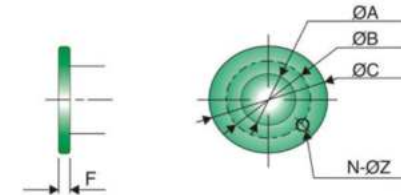
AUXILIARY CONNECTION

SYMBOL	DESIGNATION
1 M	Pressure Measurement Instrument
3 M	Pressure Measurement Instrument
6 B	Casing Drain
6 D	Printing and Venting
8 B	Leakage Drain
10 E	Sealing Liquid Inlet
11 E	Flushing Liquid Inlet

PUMP SIZE	1 M	6 B	8 B	10 E
	3 M	6 D		11 E
	DIMENSION			
50 x 32 - 160				
50 x 32 - 200				
50 x 40 - 200				
50 x 40 - 250				
50 x 40 - 315.1				
65 x 50 - 160				
65 x 50 - 200				
65 x 50 - 250				
65 x 50 - 315.1				
80 x 65 - 160				
80 x 65 - 200				
80 x 65 - 250				
80 x 65 - 315.1				
100 x 80 - 125				
100 x 80 - 160				
100 x 80 - 200				
100 x 80 - 250				
100 x 80 - 315.1				
100 x 80 - 400.1				
125 x 100 - 160				
125 x 100 - 200				
125 x 100 - 200.1				
125 x 100 - 250				
125 x 100 - 250.1				
125 x 100 - 315				
125 x 100 - 400				
150 x 125 - 200				
150 x 125 - 250				
150 x 125 - 315				
150 x 125 - 400				
200 x 150 - 200				
200 x 150 - 250				
200 x 150 - 315				
200 x 150 - 400				



PUMP FLANGE DIMENSION (acc. to JIS 10 kgf / cm<sup>2</sup>F.F.)

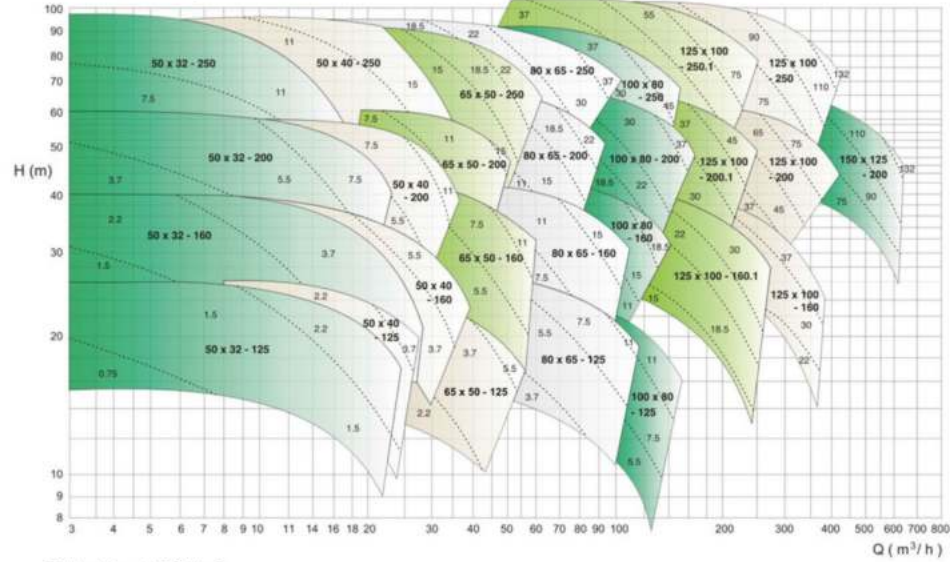


dimension in mm

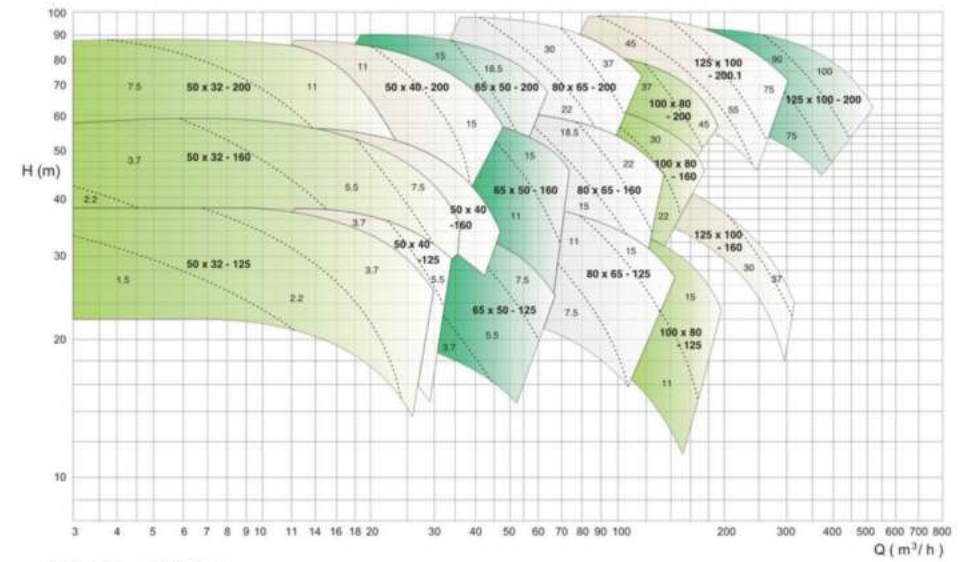
ND	ØA	ØB	ØC	F	N - ØZ
32	32	100	135	20	4 - 19
40	40	105	140	20	4 - 19
50	50	120	155	20	4 - 19
65	65	140	175	22	4 - 19
80	80	150	185	22	8 - 19
100	100	175	210	24	8 - 19
125	125	210	250	24	8 - 23
150	150	240	280	26	8 - 23
200	200	290	330	26	12 - 23

PUMP SIZE	PUMP DIMENSION													FOOT DIMENSION						SHAFT END DESIGN							
	DN 1	DN 2	a	b1	b2	f	h1	h2	b	C	d2	i	m1	m2	m3	j	k1	k2	n1	n2	S1	S2	W	d1k6	l	t	u
50 x 32 - 160 *	50	32	80	116	125	360	132	160	50	103	16	25	100	70	50	15	110	160	240	190	4	15	257	24	50	27	8
50 x 32 - 200 *	50	32	80	128	137	360	160	180	50	103	16	25	100	70	50	15	110	160	240	190	4	18	257	24	50	27	8
50 x 40 - 200 *	50	40	80	132	141	360	180	180	50	103	16	25	100	70	50	15	110	150	240	190	4	18	257	24	50	27	8
50 x 40 - 250 *	50	40	100	170	176	350	180	225	65	109	16	25	125	95	50	15	110	160	320	250	4	18	251	32	50	35	8
50 x 40 - 315.1 *	50	40	125	194	203	470	225	250	65	132	16	25	125	95	50	15	110	160	345	280	6	18	338	32	80	35	10
65 x 50 - 160 *	65	50	80	115	131	360	132	160	50	103	16	25	100	70	50	15	110	160	240	190	4	15	257	24	50	27	8
65 x 50 - 200 *	65	50	100	133	147	360	160	180	50	103	16	25	100	70	50	15	110	160	265	212	4	15	257	24	50	27	8
65 x 50 - 250 *	65	50	100	165	178	360	180	225	65	109	16	25	125	95	50	15	110	160	320	250	4	18	251	32	50	35	8
65 x 50 - 315.1 *	65	50	125	200	216	470	225	280	65	132	16	25	125	95	50	15	110	160	345	280	6	18	338	32	80	35	10
80 x 65 - 160 *	80	65	100	125	147	360	160	180	50	103	16	25	100	70	50	15	110	160	265	212	4	15	257	24	50	27	8
80 x 65 - 200 *	80	65	100	145	165	360	160	200	50	103	16	25	100	70	50	15	110	150	265	212	4	15	257	32	50	35	8
80 x 65 - 250 *	80	65	100	168	184	360	180	225	65	109	16	25	125	95	50	15	110	160	320	250	4	18	251	32	50	35	8
80 x 65 - 315.1 *	80	65	125	208	229	470	225	280	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
100 x 80 - 125 *	100	80	100	120	148	360	160	180	65	103	16	25	125	95	50	15	110	160	280	212	4	18	257	32	50	35	8
100 x 80 - 160 *	100	80	100	130	158	360	160	200	85	103	16	25	125	95	50	15	110	150	280	212	4	18	257	32	50	35	8
100 x 80 - 200 *	100	80	100	164	177	360	180	225	65	109	16	25	125	95	50	15	110	160	320	250	4	18	251	32	50	35	8
100 x 80 - 250 *	100	80	100	180	200	470	200	250	80	132	21	25	160	120	50	15	110	160	360	280	6	20	338	32	80	35	10
100 x 80 - 315.1 *	100	80	125	220	244	470	250	315	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
100 x 80 - 400.1 **	100	80	125	253	276	530	280	355	80	192	21	25	200	150	50	15	110	160	435	355	6	20	338	42	115	45	12
125 x 100 - 160	125	100	125	178	225	470	200	250	80	132	21	25	160	120	50	15	110	160	360	280	6	18	338	32	80	35	10
125 x 100 - 200	125	100	125	173	213	470	200	280	80	132	21	25	160	120	50	15	110	160	360	280	6	18	338	32	80	35	10
125 x 100 - 200.1	125	100	125	161	189	470	180	250	65	132	16	25	125	95	50	15	110	150	345	280	4	18	338	32	80	35	10
125 x 100 - 250	125	100	140	190	220	470	225	280	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
125 x 100 - 250.1	125	100	125	184	210	470	225	280	80	132	21	25	160	120	50	15	110	160	400	315	6	18	338	32	80	35	10
125 x 100 - 315	125	100	140	225	255	470	250	315	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
125 x 100 - 400 **	125	100	140	253	280	530	280	355	100	161	26	25	200	150	50	15	110	160	500	400	6	20	369	42	115	45	12
150 x 125 - 200	150	125	140	195	244	470	250	315	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
150 x 125 - 250	150	125	140	229	275	470	250	355	80	132	21	25	160	120	50	15	110	160	400	315	6	20	338	32	80	35	10
150 x 125 - 315 **	150	125	140	238	278	530	280	355	100	192	26	25	200	150	50	15	110	160	500	400	6	20	338	42	115	45	12
150 x 125 - 400 **	150	125	140	275	305	530	315	400	100	161	26	25	200	150	50	15	140	200	500	400	6	20	369	42	115	45	12
200 x 150 - 200	200	150	160	238	315	470	280	400	100	132	26	25	200	150	50	15	110	160	550	450	6	20	338	32	80	35	10
200 x 150 - 250 **	200	150	160	228	298	530	280	375	100	192	26	25	200	150	50	15	110	160	500	400	6	20	338	42	115	45	12
200 x 150 - 315 **	200	150	160	255	303	530	315	400	100	161	26	25	200	150	50	15	140	200	550	450	6	20	369	42	115	45	12
200 x 150 - 400 **	200	150	160	285	325	530	315	450	100	161	26	25	200	150	50	15	140	200	550	450	6	20	369	42	115	45	12

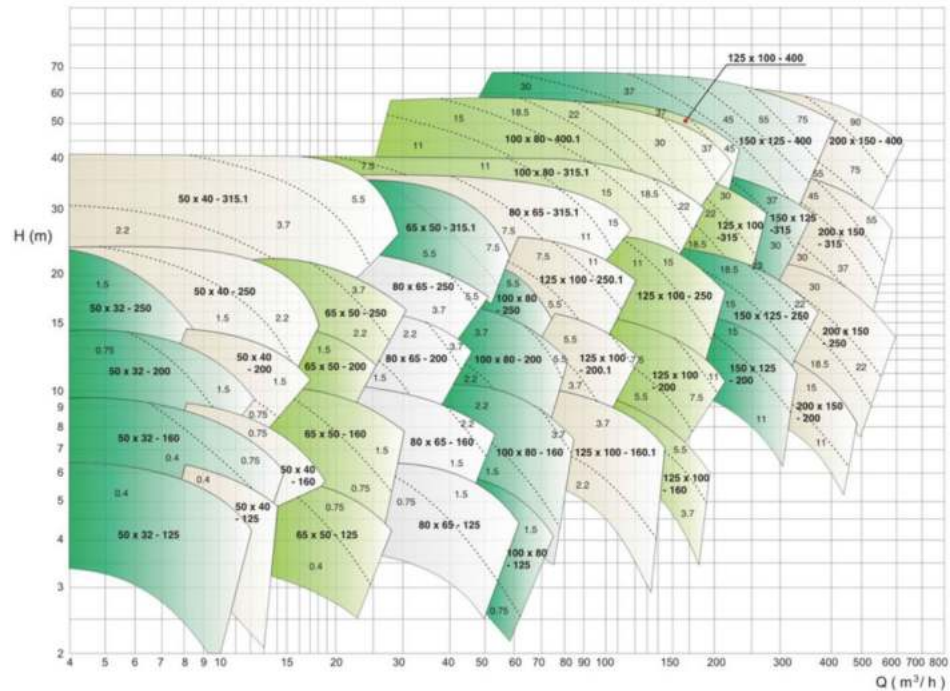
50Hz-2P n=2900 1/min



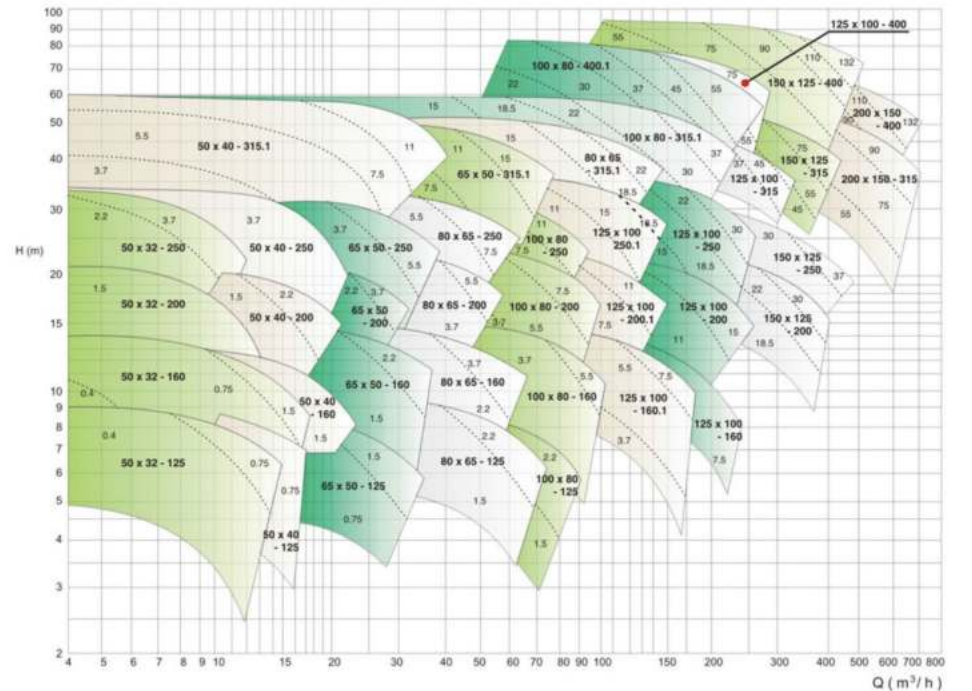
60Hz-2P n=3500 1/min



50Hz-4P n=1450 1/min



60Hz-4P n=1750 1/min



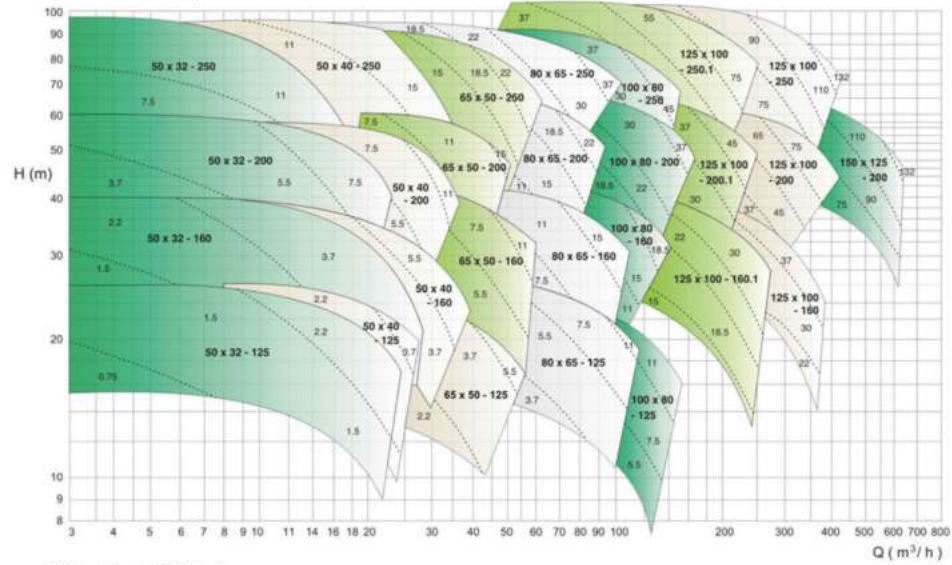
Notes

For types : 50 x 32 - 125, 50 x 32 - 250, 50 x 40 - 125, 50 x 40 - 160, 65 x 50 - 125, 80 x 65 - 125, 125 x 100 - 160.1 TGI does not produce.

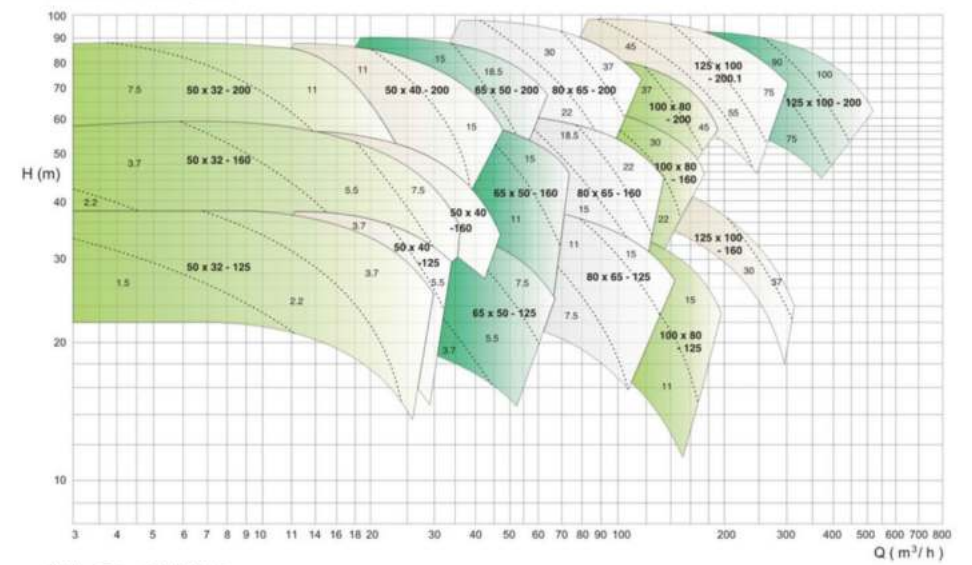
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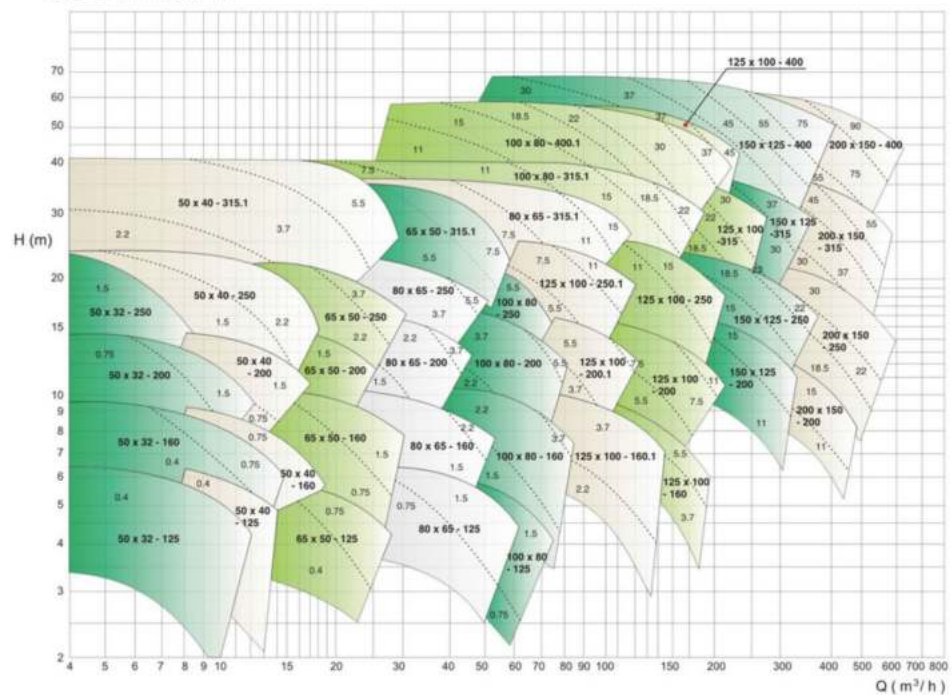
50Hz-2P n=2900 1/min



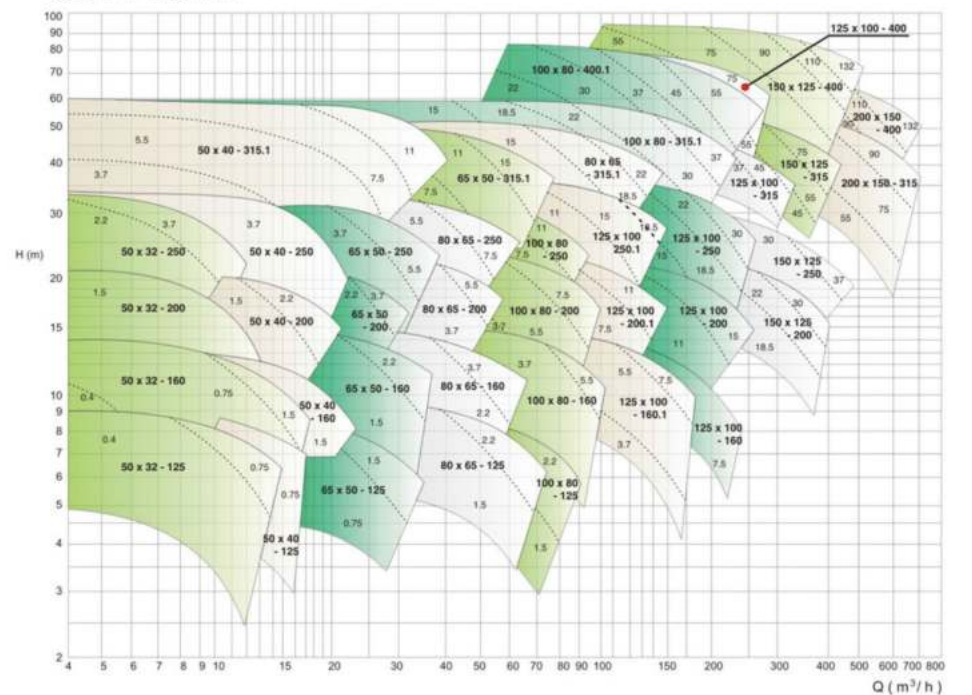
60Hz-2P n=3500 1/min



50Hz-4P n=1450 1/min



60Hz-4P n=1750 1/min



Notes

For types : 50 x 32 - 125, 50 x 32 - 250, 50 x 40 - 125, 50 x 40 - 160, 65 x 50 - 125, 80 x 65 - 125, 125 x 100 - 160.1 TGI does not produce.

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