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National Standard of the People's Republic of China

GB/T 2816—2014
Instead of GB/T 2816—2002

Submersible pumps for deep well

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Foreword

This national standard is drafted according to the rules of GB/T 1.1—2009.

GB/T 2816-2002 Submersible pumps for deep well is replaced by this national standard.

Compared with GB/T 2816-2002, except editorial amendments, technical differences between this national standard and GB/T 2816-2002 are listed below:

—The range of frame numbers are expanded. Pumps with following frame numbers are added: 75 mm, 125 mm, 225 mm, 500 mm. The two flow rate grades of pumps with 75 mm frame number are $1m^3/h$ and $2m^3/h$ repectively. The five flow rate grades of pumps with 125 mm frame number are $5m^3/h$, $8m^3/h$, $10m^3/h$, $15m^3/h$, and $20m^3/h$ repectively. The seven flow rate grades of pumps with 225 mm frame number are $32m^3/h$, $40m^3/h$, $50m^3/h$, $63m^3/h$, $80m^3/h$, $100m^3/h$, and $125m^3/h$ repectively. The four flow rate grades of pumps with 500mm frame number are $500m^3/h$, $630m^3/h$, $800m^3/h$ and 1000 m^3/h repectively (see Table 1).

—The flow rate grades of pumps with existing frame numbers are added: For pumps with 100 mm frame number, flow rates of 12 m^3/h and 15 m^3/h are added; For pumps with 150 mm frame number, flow rates of 40 m^3/h and 50 m^3/h are added; For pumps with 175 mm frame number, flow rate of 5 m^3/h is added; For pumps with 200 mm frame number, flow rate of 10 m^3/h is added; For pumps with 250 mm frame number, flow rates of 160 m^3/h and 240 m^3/h are added; For pumps with 300 mm frame number, flow rate of 160 m^3/h is added; For pumps with 400 mm frame number, flow rate of 400 m^3/h is added (see Table1).

—With the increasement of power of each series of frame numbers pumps, the corresponding values of pump lift for each flow rate grade are increased.The maximum lift for pumps with 100 mm frame number is increased from 200 m to 480 m; The maximum lift for pumps with 150 mm frame number is increased from 300 m to 850 m; The maximum lift for pumps with 175 mm frame number is increased from 247 m to 754 m; The maximum lift for pumps with 200 mm frame number is increased from 308 m to 917 m; The maximum lift for pumps with 250 mm frame number is increased from 598 m to 897 m; The maximum lift for pumps with 300 mm frame number is increased from 336 m to 567 m; The maximum lift for pumps with 350 mm frame number is increased from 192 m to 504 m; The maximum lift for pumps with 400 mm frame number is increased from 75 m to 288 m (see Table 1).

—Performance indexes of 2900 r/min for pumps with 350 mm and 400 mm frame numbers are added (see Table 1).

—Ratio of rated power for pump motors is specified(see clause 4.3.3).

—The connection dimension and tolerance of motors and submersible pumps are modified(see Table 2 in version 2002).

—The calculation method of input power is specified(see clause 5.2.1).

For adapting to new products development trend, the supplement curves for each flow rate of every frame number are given.

This national standard was proposed by China Machinery Industry Federation.

This national standard is governed by Technical Committee 201 on Agricultural Machinery of Standardization Administration of China（SAC/TC201）.

This national standard was drafted by following organizations: Chinese Academy of Agricultural Mechanization Sciences, Jiangsu University Fuild Machinery Engineering Center, Shimge Pump Group, Shanxi Tianhai Pump Co., Ltd, Shandong Yanshan Pumps Co., Ltd, Shandong Celebrity Industrial Group Co., Ltd, Zhejiang Dayuan Pumps Industrial Co.,Ltd, Taizhou Jiadi Pump Industry Co., Ltd, Haicheng Sanyu Pumps Co., Ltd.

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Previous versions of this national standard are GB/T 2816—1981, GB/T 2816—1991 and GB/T 2816—2002.

Submersible pumps for deep well

1 Scope

This national standard specifies types, model, basic parameters, connection size, technical requirements, test methods, inspection rules, marking, packaging and storage for complete set of pumps and information.

The national standard is applicable to submersible pumps for deep well which was connected to submersible motor and used to pump water (hereinafter refered as pump).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191-2008Packaging - Pictorial marking for handling of goods

GB/T 1095 Square and rectangular keyways

GB/T 1096 Square and rectangular keys

GB/T 1144 Straight-sided spline--Dimensions，tolerances and verification

GB/T 2818 Submersible motor for deep well

GB/T 2828.1 Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 5013.4 Rubber insulated cables of rated voltages up to and including 450/750V - Part 4：Cords and flexible cables

GB/T 7021 Glossary of terms for centrifugal pump

GB 10395.8 Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - Part 8: Irrigation pumps and machines

GB/T 12785-2014 Test methods for submersible motor-pumps

GB/T 13306 Plates

GB/T 13384 General specifications for packing of mechanical and electrical product

JB/T 5673 Tractors and machinery for agricultural and forestry-general technical requirements of painting

JB/T 50080 Submersible pumps-assessment for reliability

3 Terms and definitions

The following terms and definitions specified in GB/T 7021 apply.

3.1 radial thrust

While in the process of starting or normal working condition, join forces formed by pressure difference which is produced by front and back cover plates.

Note: The direction of radial thrust is from back cover plates and points at impeller sunction inlet, sometimes on the opposite direction.

3.2 pump parts

Components consisting of impellers, diversion shell (guide vane) and other parts.

3.3 pumping device

A device consisting of pump working parts, motors, pipes, water resistence cables, pump frames, control cabinets and related accessories, shown in Table 1.

Pump related accessories includes cable fasteners, cable protective cover,cable joint material, foundation bolts, and seal gaskets of lifting pipe interface.

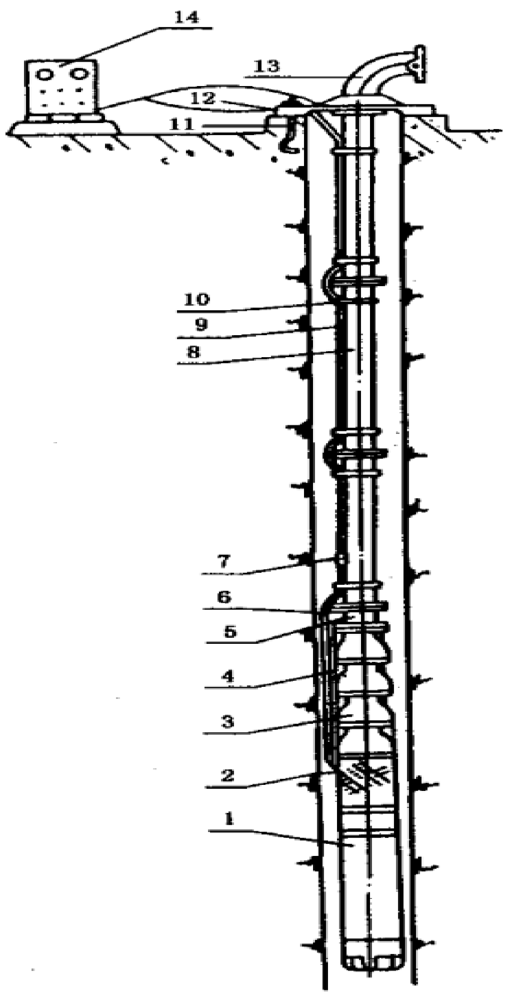


Illustration:

1 Motor;

2 Filter (inlet);

3 Pump working parts;

4 Cable protective cover;

5 Short lifting pipe;

6 Motor extracted cable;

7 Cable joint;

8 Lifting pipe;

9 Water resistence cable;

10 Cable fasteners;

11Foundation bolt;

12 Pump frame (floor and plywood);

13 Bend;

14 Control cabinets

Figure 1

4 Type, model, basic parameters and connection size

4.1 Type

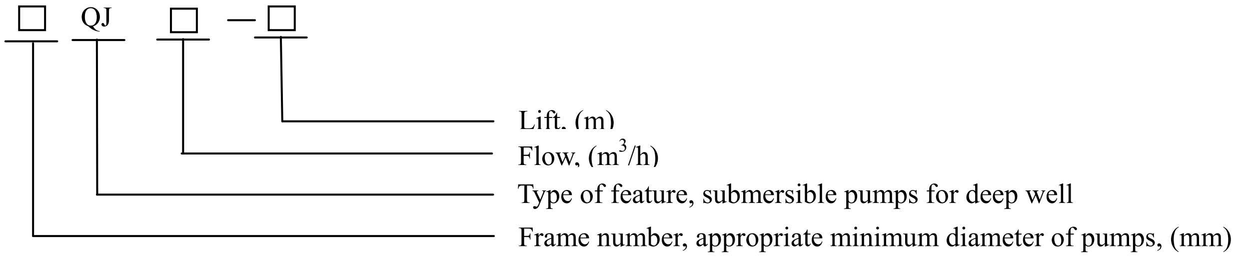
4.1.1 Pumps are vertical type, with diversion shells and guide vanes. Impellers are centrifugal type or mixed flow type.

4.1.2 Pumps and submersible motors are direct connected or coxial.

4.1.3 Motor rotates generally clockwise from the view of shaft end.

4.2 Model

Pump model is consisted of capitalized pinyin letters and numbers, as follows:



Case: 200QJ80-55 represents that pumpframe number is 200, its flow is 80 m^3/h, its lift is 55m .

4.3 Basic parameters

4.3.1 Basic parameters of pump specified points should comply with Table 1. Tolerance of basic parameters should comply with the clause 5.2.2.

Table 1

Model	Flow *Q* m^3/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
75QJ1-20	1	20	2850	30	0.25	71
75QJ1-35		35			0.37	
75QJ1-50		50			0.55	
75QJ1-73		73			0.75	
75QJ1-115		115			1.5	
75QJ1-130		130				
75QJ1-160		160			2.2	
75QJ1-190		190				
75QJ1-200		200				
75QJ2-22	2	22	2850	42	0.37	71
75QJ2-30		30			0.55	
75QJ2-47		47			0.75	
75QJ2-65		65			1.1	
75QJ2-70		70				
75QJ2-85		85			1.5	
75QJ2-100		100				
75QJ2-130		130			2.2	
75QJ2-150		150				
100QJ2-35	2	35	2850	44	0.55	96
100QJ2-50		50			0.75	
100QJ2-70		70			1.1	
100QJ2-75		75				
100QJ2-90		90			1.5	
100QJ2-100		100				
100QJ2-105		105				
100QJ2-140		140			2.2	
100QJ2-150		150				
100QJ2-155		155				
100QJ2-190		190			3	
100QJ2-200		200				
100QJ2-250		250			4	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
100QJ2-350		350			5.5	
100QJ2-480		480			7.5	
100QJ3.2-23	3.2	23	2850	48	0.55	96
100QJ3.2-36		36			0.75	
100QJ3.2-50		50			1.1	
100QJ3.2-68		68			1.5	
100QJ3.2-72		72				
100QJ3.2-99		99			2.2	
100QJ3.2-103		103				
100QJ3.2-135		135			3	
100QJ3.2-144		144				
100QJ3.2-189		189			4	
100QJ3.2-243		243			5.5	
100QJ3.2-342		342			7.5	
100QJ5-16	5	16	2850	51	0.55	96
100QJ5-24		24			0.75	
100QJ5-32		32			1.1	
100QJ5-36		36				
100QJ5-48		48			1.5	
100QJ5-64		64			2.2	
100QJ5-72		72				
100QJ5-88		88			3	
100QJ5-96		96				
100QJ5-120		120			4	
100QJ5-160		160			5.5	
100QJ5-225		225			7.5	
100QJ8-14	8	14	2850	53	0.75	96
100QJ8-21		21			1.1	
100QJ8-28		28			1.5	
100QJ8-32		32				
100QJ8-42		42			2.2	
100QJ8-45		45				
100QJ8-56		56			3	
100QJ8-63		63				
100QJ8-84		84			4	
100QJ8-112		112			5.5	
100QJ8-147		147			7.5	
100QJ12-15	12	15	2850	56	1.1	96
100QJ12-20		20			1.5	
100QJ12-32		32			2.2	
100QJ12-45		45			3	
100QJ12-60		60			4	
100QJ12-80		80			5.5	
100QJ12-100		100			7.5	
100QJ12-110		110				

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
100QJ15-18	15	18	2850	57	1.5	96
100QJ15-24		24			2.2	
100QJ15-34		34			3	
100QJ15-44		44			4	
100QJ15-60		60			5.5	
100QJ15-88		88			7.5	
125QJ5-36	5	36	2850	45	1.5	120
125QJ5-63		63			2.2	
125QJ5-108		108			4	
125QJ5-153		153			5.5	
125QJ5-216		216			7.5	
125QJ5-261		261			9.2	
125QJ5-315		315			11	
125QJ5-369		369			13	
125QJ5-432		432			15	
125QJ5-531		531			18.5	
125QJ5-630		630			22	
125QJ8-40	8	40	2850	53	2.2	120
125QJ8-64		64			3	
125QJ8-80		80			4	
125QJ8-112		112			5.5	
125QJ8-144		144			7.5	
125QJ8-176		176			9.2	
125QJ8-216		216			11	
125QJ8-256		256			13	
125QJ8-288		288			15	
125QJ8-352		352			18.5	
125QJ8-448		448			22	
125QJ10-48	10	48	2850	55	3	120
125QJ10-64		64			4	
125QJ10-88		88			5.5	
125QJ10-128		128			7.5	
125QJ10-160		160			9.2	
125QJ10-184		184			11	
125QJ10-216		216			13	
125QJ10-248		248			15	
125QJ10-312		312			18.5	
125QJ10-376		376			22	
125QJ15-48	15	48	2850	59	4	120
125QJ15-64		64			5.5	
125QJ15-88		88			7.5	
125QJ15-112		112			9.2	
125QJ15-128		128			11	

Model	Flow *Q* m³/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
125QJ15-160		160			13	
125QJ15-176		176			15	
125QJ15-224		224			18.5	
125QJ15-264		264			22	
125QJ20-35	20	35	2850	63	4	120
125QJ20-49		49			5.5	
125QJ20-70		70			7.5	
125QJ20-84		84			9.2	
125QJ20-105		105			11	
125QJ20-119		119			13	
125QJ20-140		140			15	
125QJ20-175		175			18.5	
125QJ20-210		210			22	
150QJ5-50	5	50	2850	58	1.5	143
150QJ5-100		100			3	
150QJ5-150		150			4	
150QJ5-200		200			5.5	
150QJ5-250		250			7.5	
150QJ5-300		300			9.2	
150QJ5-400		400			11	
150QJ5-450		450			13	
150QJ5-500		500			15	
150QJ5-650		650			18.5	
150QJ5-750		750			22	
150QJ5-850		850			25	
150QJ10-50	10	50	2850	63	3	143
150QJ10-100		100			5.5	
150QJ10-150		150			7.5	
150QJ10-200		200			11	
150QJ10-250		250			13	
150QJ10-300		300			15	
150QJ10-350		350			18.5	
150QJ10-400		400			22	
150QJ10-450		450			25	
150QJ10-550		550			30	
150QJ10-700		700			37	
150QJ20-26	20	26	2850	65	3	143
150QJ20-39		39			4	
150QJ20-52		52			5.5	
150QJ20-78		78			7.5	
150QJ20-98		98			9.2	
150QJ20-104		104			11	
150QJ20-111		111				
150QJ20-143		143			15	
150QJ20-156		156				

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
150QJ20-182		182			18.5	
150QJ20-214		214			22	
150QJ20-247		247			25	
150QJ20-312		312			30	
150QJ20-351		351			37	
150QJ20-429		429			45	
150QJ32-18	32	18	2850	66	3	143
150QJ32-24		24			4	
150QJ32-36		36			5.5	
150QJ32-42		42			7.5	
150QJ32-54		54			9.2	
150QJ32-66		66			11	
150QJ32-84		84			13	
150QJ32-96		96			15	
150QJ32-114		114			18.5	
150QJ32-138		138			22	
150QJ32-150		150			25	
150QJ32-180		180			30	
150QJ32-228		228			37	
150QJ32-270		270			45	
150QJ40-24	40	24	2850	66	5.5	143
150QJ40-36		36			7.5	
150QJ40-48		48			9.2	
150QJ40-54		54			11	
150QJ40-60		60			13	
150QJ40-78		78			15	
150QJ40-90		90			18.5	
150QJ40-96		96				
150QJ40-114		114			22	
150QJ40-126		126			25	
150QJ40-144		144			30	
150QJ40-150		150				
150QJ40-180		180			37	
150QJ40-192		192				
150QJ40-216		216			45	
150QJ50-18	50	18	2850	66	5.5	143
150QJ50-30		30			7.5	
150QJ50-36		36			9.2	
150QJ50-42		42			11	
150QJ50-48		48			13	
150QJ50-54		54				
150QJ50-60		60			15	
150QJ50-72		72			18.5	

Model	Flow *Q* m^3/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
150QJ50-90		90			22	
150QJ50-102		102			25	
150QJ50-120		120			30	
150QJ50-150		150			37	
150QJ50-180		180			45	
175QJ5-65	5	65	2850	40	3	168
175QJ5-91		91			4	
175QJ5-117		117			5.5	
175QJ5-130		130				
175QJ5-156		156			7.5	
175QJ5-182		182				
175QJ5-221		221			9.2	
175QJ5-234		234				
175QJ5-247		247			11	
175QJ5-260		260				
175QJ5-273		273				
175QJ5-286		286			13	
175QJ5-299		299				
175QJ5-312		312				
175QJ5-364		364			15	
175QJ5-377		377				
175QJ5-390		390			18.5	
175QJ5-416		416				
175QJ5-442		442				
175QJ5-494		494			22	
175QJ5-546		546				
175QJ5-624		624			25	
175QJ5-689		689			30	
175QJ5-754		754				
175QJ10-42	10	42	2850	53	3	168
175QJ10-63		63			4	
175QJ10-84		84			5.5	
175QJ10-126		126			7.5	
175QJ10-147		147			9.2	
175QJ10-168		168			11	
175QJ10-210		210			13	
175QJ10-238		238			15	
175QJ10-280		280			18.5	
175QJ10-336		336			22	
175QJ10-388		388			25	
175QJ10-434		434			30	
175QJ10-476		476				
175QJ10-588		588			37	
175QJ10-616		616				
175QJ10-700		700			45	

Model	Flow Q m³/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
175QJ15-42	15	42	2850	58	4	168
175QJ15-63		63			5.5	
175QJ15-84		84			7.5	
175QJ15-105		105			9.2	
175QJ15-126		126			11	
175QJ15-147		147			13	
175QJ15-168		168			15	
175QJ15-210		210			18.5	
175QJ15-266		266			22	
175QJ15-294		294			25	
175QJ15-364		364			30	
175QJ15-448		448			37	
175QJ15-497		497			45	
175QJ15-546		546				
175QJ15-616		616			55	
175QJ15-672		672				
175QJ20-26	20	26	2850	64	3	168
175QJ20-39		39			4	
175QJ20-52		52			5.5	
175QJ20-65		65			7.5	
175QJ20-91		91			9.2	
175QJ20-104		104			11	
175QJ20-130		130			13	
175QJ20-156		156			15	
175QJ20-182		182			18.5	
175QJ20-208		208			22	
175QJ20-247		247			25	
175QJ20-299		299			30	
175QJ20-364		364			37	
175QJ20-442		442			45	
175QJ20-494		494			55	
175QJ20-546		546				
175QJ20-624		624			63	
175QJ25-39	25	39	2850	66	5.5	168
175QJ25-52		52			7.5	
175QJ25-78		78			9.2	
175QJ25-91		91			11	
175QJ25-104		104			13	
175QJ25-117		117			15	
175QJ25-156		156			18.5	
175QJ25-182		182			22	
175QJ25-208		208			25	
175QJ25-234		234			30	
175QJ25-299		299			37	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
175QJ25-377		377			45	
175QJ25-455		455			55	
175QJ25-520		520			63	
175QJ32-24		24			4	
175QJ32-36		36			5.5	
175QJ32-48		48			7.5	
175QJ32-60		60			9.2	
175QJ32-72		72			11	
175QJ32-84		84			13	
175QJ32-96		96			15	
175QJ32-120	32	120	2850	68	18.5	168
175QJ32-144		144			22	
175QJ32-168		168			25	
175QJ32-192		192			30	
175QJ32-240		240			37	
175QJ32-300		300			45	
175QJ32-360		360			55	
175QJ32-420		420			63	
175QJ40-36		36			7.5	
175QJ40-48		48			9.2	
175QJ40-60		60			11	
175QJ40-72		72			13	
175QJ40-84		84			15	
175QJ40-96		96			18.5	
175QJ40-120	40	120	2850	70	22	168
175QJ40-132		132			25	
175QJ40-156		156			30	
175QJ40-204		204			37	
175QJ40-240		240			45	
175QJ40-300		300			55	
175QJ40-348		348			63	
175QJ50-24		24			5.5	
175QJ50-36		36			9.2	
175QJ50-48		48			11	
175QJ50-60		60			13	
175QJ50-84		84			18.5	
175QJ50-96		96			22	
175QJ50-108	50	108	2850	72	25	168
175QJ50-120		120			30	
175QJ50-168		168			37	
175QJ50-204		204			45	
175QJ50-240		240			55	
175QJ50-276		276			63	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
175QJ63-22	63	22	2850	72	7.5	168
175QJ63-44		44			13	
175QJ63-55		55			15	
175QJ63-66		66			18.5	
175QJ63-77		77			22	
175QJ63-88		88			25	
175QJ63-99		99			30	
175QJ63-132		132			37	
175QJ63-154		154			45	
175QJ63-198		198			55	
175QJ63-220		220			63	
175QJ80-9	80	9	2850	73	4	168
175QJ80-18		18			7.5	
175QJ80-27		27			11	
175QJ80-36		36			15	
175QJ80-45		45			18.5	
175QJ80-54		54			22	
175QJ80-63		63			25	
175QJ80-81		81			30	
175QJ80-99		99			37	
175QJ80-126		126			45	
175QJ80-153		153			55	
175QJ80-180		180			63	
200QJ10-47	10	47	2850	51	3	190
200QJ10-62		62			4	
200QJ10-78		78			5.5	
200QJ10-93		93			7.5	
200QJ10-109		109				
200QJ10-124		124			9.2	
200QJ10-140		140				
200QJ10-155		155			11	
200QJ10-171		171				
200QJ10-186		186			13	
200QJ10-202		202				
200QJ10-217		217			15	
200QJ10-233		233				
200QJ10-248		248			18.5	
200QJ10-264		264				
200QJ10-279		279				
200QJ10-295		295				
200QJ10-326		326			22	
200QJ10-341		341				
200QJ10-355		355				
200QJ10-372	10	372	2850	51	25	190

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
200QJ10-388		388				
200QJ10-403		403				
200QJ10-419		419			30	
200QJ10-434		434				
200QJ10-450		450				
200QJ10-465		465				
200QJ10-496		496			37	
200QJ10-512		512				
200QJ10-728		728			45	
200QJ10-806		806			55	
200QJ10-883		883				
200QJ20-40	20	40	2850	66	4	190
200QJ20-54		54			5.5	
200QJ20-68		68			7.5	
200QJ20-81		81				
200QJ20-93		93			9.2	
200QJ20-108		108			11	
200QJ20-121		121			13	
200QJ20-135		135				
200QJ20-148		148			15	
200QJ20-175		175			18.5	
200QJ20-189		189				
200QJ20-202		202			22	
200QJ20-216		216				
200QJ20-243		243			25	
200QJ20-270		270			30	
200QJ20-311		311				
200QJ20-351		351			37	
200QJ20-372		372				
200QJ20-452		452			45	
200QJ20-500		500			55	
200QJ20-558		558				
200QJ20-638		638			63	
200QJ20-705		705			75	
200QJ20-771		771				
200QJ20-851		851			90	
200QJ20-917		917				
200QJ25-28	25	28	2850	68	4	190
200QJ25-42		42			5.5	
200QJ25-56		56			7.5	
200QJ25-70		70			9.2	
200QJ25-84		84			11	
200QJ25-112		112			13	
200QJ25-126		126			15	
200QJ25-154		154			18.5	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
200QJ25-182		182			22	
200QJ25-210		210			25	
200QJ25-252		252			30	
200QJ25-308		308			37	
200QJ25-378		378			45	
200QJ25-462		462			55	
200QJ25-532		532			63	
200QJ25-630		630			75	
200QJ25-770		770			90	
200QJ25-854		854			100	
200QJ32-26	32	26	2850	70	4	190
200QJ32-39		39			5.5	
200QJ32-52		52			7.5	
200QJ32-78		78			11	
200QJ32-91		91			15	
200QJ32-104		104				
200QJ32-130		130			18.5	
200QJ32-143		143			22	
200QJ32-169		169			25	
200QJ32-195		195			30	
200QJ32-247		247			37	
200QJ32-299		299			45	
200QJ32-364		364			55	
200QJ32-429		429			63	
200QJ32-507		507			75	
200QJ32-611		611			90	
200QJ32-689		689			100	
200QJ32-754		754			110	
200QJ40-26	40	26	2850	72	5.5	190
200QJ40-39		39			7.5	
200QJ40-52		52			9.2	
200QJ40-65		65			15	
200QJ40-78		78				
200QJ40-104		104			18.5	
200QJ40-117		117			22	
200QJ40-143		143			25	
200QJ40-169		169			30	
200QJ40-195		195			37	
200QJ40-208		208				
200QJ40-247		247			45	
200QJ40-312		312			55	
200QJ40-351		351			63	
200QJ40-416		416			75	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
200QJ40-507		507			90	
200QJ40-559		559			100	
200QJ40-624		624			110	
200QJ50-26	50	26	2850	74	5.5	190
200QJ50-39		39			9.2	
200QJ50-52		52			11	
200QJ50-65		65			15	
200QJ50-78		78			18.5	
200QJ50-91		91			22	
200QJ50-104		104			25	
200QJ50-130		130			30	
200QJ50-156		156			37	
200QJ50-195		195			45	
200QJ50-247		247			55	
200QJ50-286		286			63	
200QJ50-338		338			75	
200QJ50-416		416			90	
200QJ50-455		455			100	
200QJ50-507		507			110	
200QJ63-24	63	24	2850	74	7.5	190
200QJ63-36		36			11	
200QJ63-60		60			18.5	
200QJ63-72		72			22	
200QJ63-84		84			25	
200QJ63-96		96			30	
200QJ63-120		120			37	
200QJ63-144		144			45	
200QJ63-156		156				
200QJ63-192		192			55	
200QJ63-228		228			63	
200QJ63-264		264			75	
200QJ63-324		324			90	
200QJ63-360		360			100	
200QJ63-408		408			110	
200QJ80-22	80	22	2850	75	7.5	190
200QJ80-33		33			11	
200QJ80-44		44			15	
200QJ80-55		55			18.5	
200QJ80-66		66			22	
200QJ80-88		88			30	
200QJ80-99		99			37	
200QJ80-121		121			45	
200QJ80-132		132				
200QJ80-143		143			55	
200QJ80-154		154				

Model	Flow *Q* m^3/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
200QJ80-176		176			63	
200QJ80-209		209			75	
200QJ80-253		253			90	
200QJ80-286		286			100	
200QJ80-319		319			110	
200QJ100-18	100	18	2850	75	7.5	190
200QJ100-36		36			15	
200QJ100-45		45			22	
200QJ100-54		54			25	
200QJ100-63		63			30	
200QJ100-72		72				
200QJ100-81		81			37	
200QJ100-90		90			45	
200QJ100-126		126			55	
200QJ100-144		144			63	
200QJ100-171		171			75	
200QJ100-207		207			90	
200QJ100-234		234			100	
225QJ32-44	32	44	2875	70	7.5	213
225QJ32-66		66			11	
225QJ32-88		88			13	
225QJ32-110		110			18.5	
225QJ32-132		132			22	
225QJ32-154		154				
225QJ32-176		176			25	
225QJ32-198		198			30	
225QJ32-220		220			37	
225QJ32-242		242				
225QJ32-264		264			45	
225QJ32-286		286				
225QJ32-308		308				
225QJ32-330		330			55	
225QJ32-352		352				
225QJ32-374		374				
225QJ32-396		396			63	
225QJ32-418		418				
225QJ32-440		440			75	
225QJ32-462		462				
225QJ32-484	32	484	2875	70	75	213
225QJ32-506		506				
225QJ32-550		550			90	
225QJ32-572		572				
225QJ32-594		594				

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
225QJ32-616		616				
225QJ32-654		654			100	
225QJ32-676		676				
225QJ32-698		698			110	
225QJ32-720		720				
225QJ32-792		792			125	
225QJ40-21	40	21	2875	73	4	213
225QJ40-42		42			7.5	
225QJ40-63		63			11	
225QJ40-84		84			15	
225QJ40-105		105			18.5	
225QJ40-126		126			22	
225QJ40-147		147			25	
225QJ40-168		168			30	
225QJ40-189		189			37	
225QJ40-210		210				
225QJ40-231		231			45	
225QJ40-252		252				
225QJ40-273		273			55	
225QJ40-294		294				
225QJ40-315		315				
225QJ40-357		357			63	
225QJ40-378		378			75	
225QJ40-399		399				
225QJ40-420		420				
225QJ40-462		462			90	
225QJ40-483		483				
225QJ40-504		504				
225QJ40-525		525			100	
225QJ40-546		546				
225QJ40-567		567				
225QJ40-588		588			110	
225QJ40-609		609				
225QJ40-651		651			125	
225QJ40-672		672				
225QJ40-693		693				
225QJ50-24	50	24	2875	74	5.5	213
225QJ50-48		48			11	
225QJ50-72		72			18.5	
225QJ50-96		96			22	
225QJ50-120		120			30	
225QJ50-144		144			37	
225QJ50-168		168				
225QJ50-192		192			45	
225QJ50-216		216			55	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
225QJ50-240		240				
225QJ50-288		288			63	
225QJ50-336		336			75	
225QJ50-360		360			90	
225QJ50-384		384				
225QJ50-408		408				
225QJ50-432		432			100	
225QJ50-456		456				
225QJ50-480		480			110	
225QJ50-504		504				
225QJ50-528		528			125	
225QJ50-552		552				
225QJ50-576		576				
225QJ63-21	63	21	2875	75	5.5	213
225QJ63-42		42			11	
225QJ63-63		63			18.5	
225QJ63-84		84			22	
225QJ63-105		105			30	
225QJ63-126		126			37	
225QJ63-147		147			45	
225QJ63-168		168				
225QJ63-189		189			55	
225QJ63-210		210			63	
225QJ63-252		252			75	
225QJ63-294		294			90	
225QJ63-315		315				
225QJ63-336		336				
225QJ63-357		357			100	
225QJ63-378		378			110	
225QJ63-399		399				
225QJ63-420		420			125	
225QJ63-441		441				
225QJ80-22	80	22	2875	75	7.5	213
225QJ80-44		44			15	
225QJ80-66		66			22	
225QJ80-88		88			30	
225QJ80-110		110			37	
225QJ80-132		132			45	
225QJ80-154		154			55	
225QJ80-176		176			63	
225QJ80-198		198			75	
225QJ80-220		220				
225QJ80-242		242			90	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
225QJ80-264		264				
225QJ80-284		284			100	
225QJ80-306		306			110	
225QJ80-328		328				
225QJ80-350		350			125	
225QJ80-372		372				
225QJ100-15	100	15	2875	76	7.5	213
225QJ100-30		30			13	
225QJ100-45		45			18.5	
225QJ100-60		60			25	
225QJ100-75		75			37	
225QJ100-90		90				
225QJ100-105		105			45	
225QJ100-120		120			55	
225QJ100-135		135			63	
225QJ100-150		150				
225QJ100-165		165			75	
225QJ100-180		180				
225QJ100-195		195			90	
225QJ100-210		210				
225QJ100-225		225			100	
225QJ100-240		240				
225QJ100-255		255			110	
225QJ100-270		270			125	
225QJ100-285		285				
225QJ125-16	125	16	2875	76	9.2	213
225QJ125-32		32			18.5	
225QJ125-48		48			25	
225QJ125-64		64			37	
225QJ125-80		80			45	
225QJ125-96		96			55	
225QJ125-112		112			63	
225QJ125-128		128			75	
225QJ125-144		144				
225QJ125-160		160			90	
225QJ125-176		176				
225QJ125-192		192			100	
225QJ125-208		208			110	
225QJ125-224		224			125	
250QJ32-69	32	69	2875	66	11	236
250QJ32-92		92			15	
250QJ32-115		115			18.5	
250QJ32-138		138			22	
250QJ32-161		161			25	
250QJ32-184		184			30	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
250QJ32-230		230			37	
250QJ32-276		276			45	
250QJ32-322		322			55	
250QJ32-391		391			63	
250QJ32-460		460			75	
250QJ32-552		552			90	
250QJ32-598		598			100	
250QJ32-644		644			110	
250QJ32-690		690				
250QJ32-736		736			125	
250QJ32-782		782				
250QJ32-828		828			140	
250QJ32-897		897				
250QJ40-22	40	22	2875	70	4	236
250QJ40-44		44			9.2	
250QJ40-66		66			13	
250QJ40-88		88			18.5	
250QJ40-110		110			22	
250QJ40-132		132			25	
250QJ40-154		154			30	
250QJ40-198		198			37	
250QJ40-242		242			45	
250QJ40-286		286			55	
250QJ40-330		330			63	
250QJ40-396		396			75	
250QJ40-484		484			90	
250QJ40-528		528			100	
250QJ40-594		594			110	
250QJ40-660		660			125	
250QJ40-726		726			140	
250QJ40-770		770				
250QJ40-836		836			160	
250QJ40-880		880				
250QJ50-20	50	20	2875	72	5.5	236
250QJ50-40		40			9.2	
250QJ50-60		60			13	
250QJ50-80		80			18.5	
250QJ50-100		100			22	
250QJ50-120		120			30	
250QJ50-140		140				
250QJ50-160		160			37	
250QJ50-200		200			45	
250QJ50-240		240			55	
250QJ50-280		280			63	

Model	Flow *Q* m³/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
250QJ50-320		320			75	
250QJ50-400		400			90	
250QJ50-440		440			100	
250QJ50-500		500			110	
250QJ50-560		560			125	
250QJ50-620		620			140	
250QJ50-680		680			160	
250QJ50-720		720				
250QJ50-780		780			185	
250QJ50-840		840				
250QJ63-20	63	20	2875	74	5.5	236
250QJ63-40		40			11	
250QJ63-60		60			18.5	
250QJ63-80		80			22	
250QJ63-100		100			30	
250QJ63-120		120			37	
250QJ63-160		160			45	
250QJ63-200		200			55	
250QJ63-220		220			63	
250QJ63-260		260			75	
250QJ63-300		300			90	
250QJ63-360		360			100	
250QJ63-400		400			110	
250QJ63-440		440			125	
250QJ63-500		500			140	
250QJ63-540		540			160	
250QJ63-580		580				
250QJ63-640		640			185	
250QJ63-680		680				
250QJ80-20	80	20	2875	75	7.5	236
250QJ80-40		40			15	
250QJ80-60		60			22	
250QJ80-80		80			30	
250QJ80-100		100			37	
250QJ80-120		120			45	
250QJ80-160		160			55	
250QJ80-180		180			63	
250QJ80-200		200			75	
250QJ80-240		240			90	
250QJ80-280		280			100	
250QJ80-300		300			110	
250QJ80-360		360			125	
250QJ80-400		400			140	
250QJ80-460		460			160	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
250QJ80-540		540			185	
250QJ80-600		600			220	
250QJ80-640		640				
250QJ100-18	100	18	2875	75	7.5	236
250QJ100-36		36			15	
250QJ100-54		54			25	
250QJ100-72		72			30	
250QJ100-108		108			45	
250QJ100-126		126			55	
250QJ100-144		144			63	
250QJ100-162		162			75	
250QJ100-198		198			90	
250QJ100-216		216			100	
250QJ100-252		252			110	
250QJ100-288		288			125	
250QJ100-324		324			140	
250QJ100-360		360			160	
250QJ100-432		432			185	
250QJ100-504		504			220	
250QJ125-16	125	16	2875	76	9.2	236
250QJ125-32		32			18.5	
250QJ125-48		48			25	
250QJ125-64		64			37	
250QJ125-80		80			45	
250QJ125-96		96			55	
250QJ125-112		112			63	
250QJ125-128		128			75	
250QJ125-160		160			90	
250QJ125-176		176			100	
250QJ125-192		192			110	
250QJ125-224		224			125	
250QJ125-256		256			140	
250QJ125-288		288			160	
250QJ125-336		336			185	
250QJ125-416		416			220	
250QJ140-15	140	15	2875	76	9.2	236
250QJ140-30		30			18.5	
250QJ140-45		45			30	
250QJ140-60		60			37	
250QJ140-75		75			45	
250QJ140-90		90			55	
250QJ140-105		105			63	
250QJ140-120		120			75	

Model	Flow *Q* m^3/h	Lift *H* m	Rotation speed *n* r/min	Efficiency *η* %	Power *P* kW	Maximum diameter of pumps in deep well mm
250QJ140-150		150			90	
250QJ140-165		165			100	
250QJ140-180		180			110	
250QJ140-210		210			125	
250QJ140-225		225			140	
250QJ140-255		255			160	
250QJ140-300		300			185	
250QJ140-360		360			220	
250QJ160-18		18			13	
250QJ160-36		36			25	
250QJ160-54		54			37	
250QJ160-74		74			55	
250QJ160-90		90			63	
250QJ160-108		108			75	
250QJ160-126	160	126	2875	75	90	236
250QJ160-162		162			110	
250QJ160-180		180			125	
250QJ160-198		198			140	
250QJ160-234		234			160	
250QJ160-270		270			185	
250QJ160-324		324			220	
250QJ200-40		40			37	
250QJ200-60		60			55	
250QJ200-80		80			75	
250QJ200-100		100			90	
250QJ200-120		120			100	
250QJ200-140	200	140	2875	75	125	236
250QJ200-160		160			140	
250QJ200-180		180			160	
250QJ200-200		200			185	
250QJ200-260		260			220	
250QJ240-40		40			45	
250QJ240-60		60			63	
250QJ240-80		80			90	
250QJ240-100		100			110	
250QJ240-120	240	120	2875	75	125	236
250QJ240-140		140			160	
250QJ240-160		160			185	
250QJ240-200		200			220	
300QJ125-44		44			25	
300QJ125-66		66			37	
300QJ125-88		88			45	
300QJ125-110	125	110	2900	75	63	281
300QJ125-132		132			75	
300QJ125-154		154			90	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
300QJ125-176		176			100	
300QJ125-198		198			110	
300QJ125-220		220			125	
300QJ125-242		242			140	
300QJ125-286		286			160	
300QJ125-330		330			185	
300QJ125-374		374			220	
300QJ125-396		396				
300QJ125-440		440			250	
300QJ125-462		462				
300QJ125-484		484			280	
300QJ125-506		506				
300QJ140-42	140	42	2900	75	30	281
300QJ140-63		63			37	
300QJ140-84		84			55	
300QJ140-105		105			63	
300QJ140-126		126			75	
300QJ140-147		147			90	
300QJ140-168		168			100	
300QJ140-189		189			110	
300QJ140-210		210			125	
300QJ140-231		231			140	
300QJ140-252		252			160	
300QJ140-294		294			185	
300QJ140-336		336			220	
300QJ140-357		357				
300QJ140-399		399			250	
300QJ140-420		420				
300QJ140-441		441			280	
300QJ140-462		462				
300QJ140-483		483			315	
300QJ140-504	140	504	2900	75	315	281
300QJ140-525		525				
300QJ140-546		546			355	
300QJ140-567		567			355	
300QJ160-25	160	25	2900	75	18.5	281
300QJ160-50		50			37	
300QJ160-75		75			55	
300QJ160-100		100			75	
300QJ160-125		125			90	
300QJ160-150		150			110	
300QJ160-175		175			125	
300QJ160-200		200			140	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
300QJ160-225		225			160	
300QJ160-250		250			185	
300QJ160-300		300			220	
300QJ160-350		350			250	
300QJ160-400		400			280	
300QJ160-425		425			315	
300QJ160-450		450				
300QJ160-475		475			355	
300QJ160-500		500				
300QJ200-20	200	20	2900	76	18.5	281
300QJ200-40		40			37	
300QJ200-60		60			55	
300QJ200-80		80			75	
300QJ200-100		100			90	
300QJ200-120		120			100	
300QJ200-140		140			125	
300QJ200-160		160			140	
300QJ200-180		180			160	
300QJ200-200		200			185	
300QJ200-240		240			220	
300QJ200-260		260				
300QJ200-280		280			250	
300QJ200-300		300				
300QJ200-320		320			280	
300QJ200-340		340			315	
300QJ200-360		360				
300QJ200-400		400			355	
300QJ200-420		420				
300QJ240-22	240	22	2900	76	25	281
300QJ240-44		44			45	
300QJ240-66		66			75	
300QJ240-88		88			90	
300QJ240-110		110			110	
300QJ240-132		132			140	
300QJ240-154		154			160	
300QJ240-176		176			185	
300QJ240-198		198			220	
300QJ240-220		220				
300QJ240-242		242			250	
300QJ240-264		264			280	
300QJ240-286		286			315	
300QJ240-308		308				
300QJ240-330		330			355	
300QJ240-352		352				
300QJ320-21	320	21	2900	77	30	281

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
300QJ320-42		42			55	
300QJ320-63		63			90	
300QJ320-84		84			110	
300QJ320-105		105			140	
300QJ320-126		126			185	
300QJ320-147		147			220	
300QJ320-168		168				
300QJ320-189		189			250	
300QJ320-210		210			280	
300QJ320-231		231			315	
300QJ320-252		252			355	
300QJ400-17	400	17	2900	77	30	281
300QJ400-34		34			55	
300QJ400-51		51			90	
300QJ400-68		68			110	
300QJ400-85		85			140	
300QJ400-102		102			185	
300QJ400-119		119			220	
300QJ400-136		136			250	
300QJ400-153		153			280	
300QJ400-170		170				
300QJ400-187		187			315	
300QJ400-204		204			355	
350QJ200-28	200	28	2900	74	25	330
350QJ200-56		56			55	
350QJ200-84		84			75	
350QJ200-112		112			100	
350QJ200-140		140			125	
350QJ200-168		168			160	
350QJ200-196		196			185	
350QJ200-224		224			220	
350QJ200-252		252				
350QJ200-282		282			250	
350QJ200-308		308			280	
350QJ200-336		336			315	
350QJ200-392		392			355	
350QJ200-420		420			400	
350QJ200-448		448				
350QJ200-476		476			450	
350QJ200-504		504				
350QJ200-36	200	36	1450	75	30	330
350QJ200-48		48			45	
350QJ200-60		60			55	
350QJ200-72		72			63	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
350QJ200-84		84			75	
350QJ200-96		96			90	
350QJ200-120		120			110	
350QJ200-144		144			125	
350QJ200-168		168			140	
350QJ200-192		192			160	
350QJ200-204		204			185	
350QJ200-216		216				
350QJ200-240		240			220	
350QJ200-252		252				
350QJ200-276		276			250	
350QJ200-288		288				
350QJ200-312		312			280	
350QJ200-324		324				
350QJ200-336		336			315	
350QJ200-348		348				
350QJ200-360		360				
350QJ200-384		384			355	
350QJ200-396		396				
350QJ200-408		408				
350QJ320-30	320	30	2900	75	45	330
350QJ320-60		60			90	
350QJ320-90		90			125	
350QJ320-120		120			160	
350QJ320-150		150			220	
350QJ320-180		180			250	
350QJ320-210		210			315	
350QJ320-240		240			355	
350QJ320-270		270			400	
350QJ320-330		330			450	
350QJ320-22	320	22	1450	76	30	330
350QJ320-33		33			45	
350QJ320-44		44			63	
350QJ320-55		55			75	
350QJ320-66		66			90	
350QJ320-77	320	77	1450	76	110	330
350QJ320-88		88			125	
350QJ320-99		99			140	
350QJ320-110		110			160	
350QJ320-121		121				
350QJ320-132		132			185	
350QJ320-154		154			220	
350QJ320-165		165			220	
350QJ320-176		176			250	
350QJ320-180		180			250	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
350QJ320-202		202			280	
350QJ320-224		224			315	
350QJ320-246		246			355	
350QJ320-257		257				
400QJ400-40	400	40	2900	75	75	377
400QJ400-80		80			140	
400QJ400-120		120			220	
400QJ400-160		160			280	
400QJ400-200		200			355	
400QJ400-240		240			450	
400QJ400-280		280			500	
400QJ400-16	400	16	1450	76	30	377
400QJ400-32		32			55	
400QJ400-48		48			90	
400QJ400-64		64			110	
400QJ400-80		80			140	
400QJ400-96		96			160	
400QJ400-112		112			185	
400QJ400-128		128			220	
400QJ400-144		144			250	
400QJ400-160		160			280	
400QJ400-176		176			315	
400QJ400-192		192			355	
400QJ400-208		208				
400QJ400-224		224			400	
400QJ400-240		240				
400QJ400-256		256			450	
400QJ400-272		272			500	
400QJ400-288		288				
400QJ500-40	500	40	2900	75	90	377
400QJ500-80		80			185	
400QJ500-120		120			280	
400QJ500-160		160			355	
400QJ500-200		200			450	
400QJ500-15	500	15	1450	77	30	377
400QJ500-30		30			63	
400QJ500-45		45			100	
400QJ500-60		60			125	
400QJ500-75		75			160	
400QJ500-90		90			185	
400QJ500-105		105			220	
400QJ500-120		120			250	
400QJ500-135		135			280	
400QJ500-150		150			315	

Model	Flow Q m^3/h	Lift H m	Rotation speed n r/min	Efficiency η %	Power P kW	Maximum diameter of pumps in deep well mm
400QJ500-165		165			355	
400QJ500-180		180			400	
400QJ500-210		210			450	
400QJ500-225		225			500	
400QJ500-240		240				
500QJ500-18	500	18	1450	76	37	460
500QJ500-36		36			75	
500QJ500-54		54			125	
500QJ500-72		72			160	
500QJ500-90		90			185	
500QJ500-108		108			250	
500QJ500-144		144			315	
500QJ500-162		162			355	
500QJ500-180		180			400	
500QJ500-198		198			450	
500QJ500-216		216			500	
500QJ630-18	630	18			55	
500QJ630-36		36			110	
500QJ630-54		54			140	
500QJ630-72		72			185	
500QJ630-90		90			250	
500QJ630-108		108			280	
500QJ630-126		126			355	
500QJ630-144		144			400	
500QJ630-162		162			450	
500QJ630-180		180			500	
500QJ800-18	800	18		77	63	
500QJ800-36		36			125	
500QJ800-54		54			185	
500QJ800-72		72			250	
500QJ800-90		90			315	
500QJ800-108		108			355	
500QJ800-126		126			450	
500QJ800-144		144			500	
500QJ1000-18	1000	18			75	
500QJ1000-36		36			160	
500QJ1000-54		54			220	
500QJ1000-72		72			315	
500QJ1000-90		90			400	
500QJ1000-108		108			450	

4.3.2 If basic parameters of pumps are not included in the Table 1, the efficiency of pump can be found in the curve of appendix A.

4.3.3 If basic parameters of pumps are not included in the Table 1, the rated power of motor should not less than 1.14 times of specified point axis power.

4.4 Connection size

4.4.1 Connection size and tolerance of pumps and submersible motors should comply with Table 2 and figure 2.

4.4.2 Axises without noted tolerance shall be manufacutured according to h 14. Holes shall be manufacured according to H14. Length shall be manufacured according to Js14.

4.4.3 Coupling positioning pin hole should not bear the radial thrust.

4.4.4 1 or 2 cable troughs can be used according to the necessity, and its position shall be referred to Table 2.

4.4.5 Splines can be used to be the connection form pumps and motors.

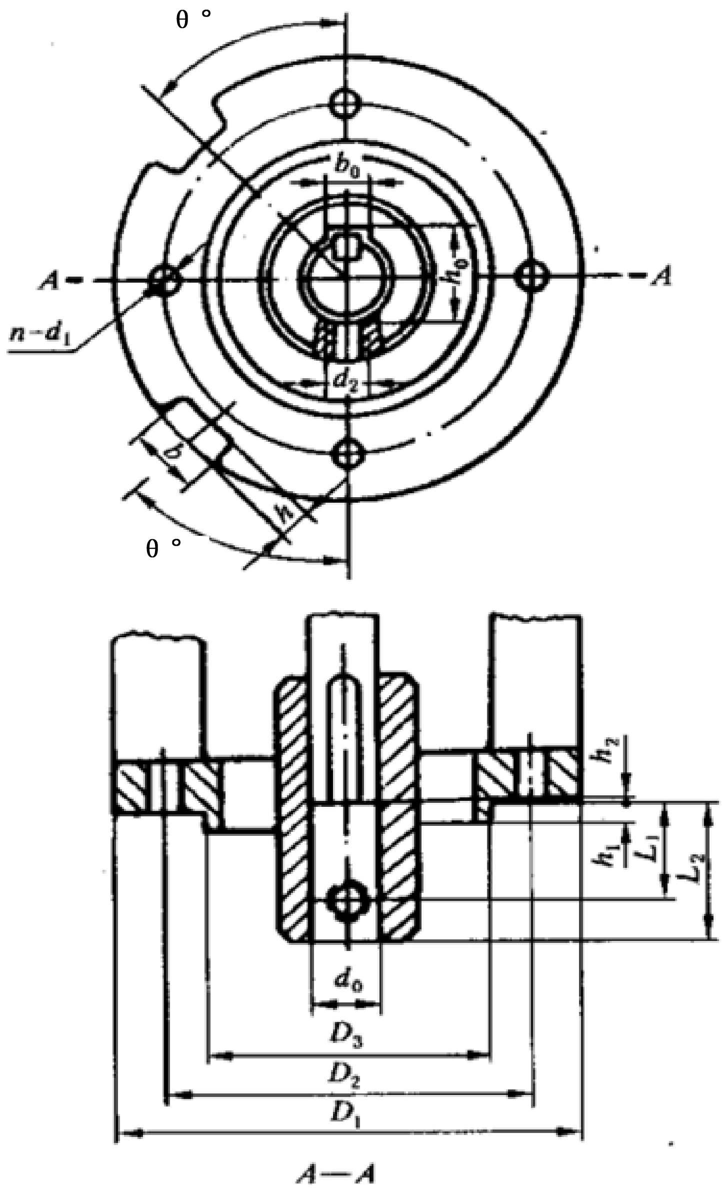


Figure 2

Table 2 Unit: mm

Frame numbers	Maximum diameter dimension of pumps in the deep well	Dimension of cooperated parts of flanch							Dimension of axises and clutches						Dimension of cable trough	
		D_1	D_2	D_3	h_1	h_2	n-d_1	θ	d_0	d_2	L_1	L_2	b_0	h_0	b	h
75	71	70	56	42g6	4.5	0±0.5	4-9	45	14H7	M8	20	30	5	$16.3^{+0.1}$	12	6
100	96	90	75	60g6					16H7					$18.3^{+0.1}$	14	8
									(14H7)					$16.3^{+0.1}$		
125	120	110	90	70g6					18H7			35	6	$20.8^{+0.1}$	22	10
150	143	135	110	90g6	6		4-12		18H7	M10	20			$20.8^{+0.1}$		
									25H7		25	45	8	$28.3^{+0.2}$		
									28H7		30	55		$31.3^{+0.2}$	32	13
175	168	160	130	95g6			4-14.5		25H7	M10	25	45		$28.3^{+0.2}$		
									28H7		30	55		$31.3^{+0.2}$		
									32H7	M12	35	70	10	$35.3^{+0.2}$		
200	190	180	150	95g6			4-14.5		25H7	M10	25	45	8	$28.3^{+0.2}$		
									28H7		30	55		$31.3^{+0.2}$		
									32H7	M12	35	70	10	$35.3^{+0.2}$	44	19
									38H7					$41.3^{+0.2}$		
225	213	200	165	100g6			4-18.5		28H7	M10	30	55	8	$31.3^{+0.2}$	32	13
									32H7	M12	35	70	10	$35.3^{+0.2}$	44	19
									38H7					$41.3^{+0.2}$		
									50H7	M16	40	85	14	$53.8^{+0.2}$	50	22
250	236	210	165	110g6			4-18.5		28H7	M10	30	55	8	$31.3^{+0.2}$	44	19
									32H7	M12	35	70	10	$35.3^{+0.2}$		
									38H7					$41.3^{+0.2}$		
									50H7	M16	40	85	14	$53.8^{+0.2}$	50	22
300	281	265	215	130g6			4-24		38H7	M12	35	70	10	$41.3^{+0.2}$		
									45H7	M16	40	85	14	$48.8^{+0.2}$		
									50H7					$53.8^{+0.2}$		
									60H7	M18	50	100	18	$64.4^{+0.2}$	60	25
350	330	310	250	190g6			4-24		45H7	M16	40	85	14	$48.8^{+0.2}$	50	22
									50H7					$53.8^{+0.2}$		
									60H7	M18	50	100	18	$64.4^{+0.2}$	60	25
									70H7	M24	60		20	$74.9^{+0.2}$		
400	377	360	310	190g6			8-24	22.5	50H7	M16	40	85	14	$53.8^{+0.2}$	50	22
									60H7	M18	50	100	18	$64.4^{+0.2}$	60	25
									70H7	M24	60		20	$74.9^{+0.2}$		
									80H7	M26	70	140	22	$85.4^{+0.2}$	70	30
500	460	450	380	250g6	8		8-26		60H7	M18	50	100	18	$64.4^{+0.2}$	75	35
									70H7	M24	60		20	$74.9^{+0.2}$		
									80H7	M26	70	140	22	$85.4^{+0.2}$		
									90H7		80	160	25	$95.4^{+0.2}$		

5 Technical requirements

5.1 Basic requirement

5.1.1Pumps should meet the requirement of this standard and be manufactured according to drafts and technical documents which are approved in accordance with prescribed procedures.

5.1.2 Pumps shall be able to run if pumped water meets the following requirements:

a) Temperature shall not higher than 20 ℃;

b) Solid content (as mass fraction) shall not more than 0.01%;

c) PH: 6.5~8.5;

d) Hydrogen Sulfide content shall not more than 1.5 mg/L;

e) Chloridion content shall not more than 400 mg/L.

5.2 Tolerance of basic parameters

5.2.1 When pump work under the condtion of 0.8~ 1.2 times specified flow, input power of motor shall not exceed its maximum value P_{max}. And P_{max} should be calculated by formular (1) or (2):

If $P_N \leqslant 150$kW,

$$P_{max} = P_N / [\eta_m - 0.15(1 - \eta_m)] \quad (1)$$

If $P_N \geqslant 150$kW,

$$P_{max} = P_N / [\eta_m - 0.10(1 - \eta_m)] \quad (2)$$

In the formular:

P_{max}: Maximum input power, kW;

P_N: Rated input power, kW;

η_m: Efficiency of motor rated power, %.

5.2.2 While in the factory inspection and type inspection, parameters including flow, lift, power and tolerance should meet rules of level 2B in Table 7 of GB/T 12785-2014.

5.3 Radial thrust

Within performance range of pump, downward radial thrust, including axis water thrust and weight of rotor, shall less than the specified value in Table 3.

Table 3

Frame numbers	75	100	125	150	175	200	225	250	300	350	400	500
Permitted radial thrust /kN	0.8	1.5	4	6	8	10	12	15	22			28

5.4 Pump working parts

5.4.1 Torque of impellers can be transmmited by flat key, cone lining, hexagon shaft and spline.

If the torque is transmmited by flat key, type and dimension of flat key and key groove shall meet requirement of GB/T 1095 and GB/T 1096.

Impeller is fixed by cone lining, effective area of taper bore and cone sleeve shall not less than 60% of contacting area.

If the torque is transmmited by spline, its dimension, tolerance and inspection rules shall comply with GB/T 1144.

5.4.2 Impellers shall be tested in the balance experiment. Level G6.3 in the appendix B is adopted as balance level. Permitted umbalance amount in the static balance test is calculated according to formular (3)

$$U_{per} \le e_{per} \cdot m \quad (3)$$

In the formular:

U_{per}——permitted umbalance amount,g · mm;

e_{per}——ratio of permitted umbalance amount,g · mm/kg.

If rotation speed is 3000r/min，e_{per} =20 g · mm/kg；If rotation speed is 1500r/min，e_{per} =40 g · mm/kg；

m——weight of single impeller，kg；

If U_{per}/R＜1g, the value would be noted as 1g. R is impeller radius without weight, mm.

To smoothly remove the unbanlanced weight on the impeller coverplate, the sickness removed shall not more than 1/3 thickness of coverplate.

5.4.3 If use closed impellers, contacting position of diversion shell and choma of impeller should set replaceable sealing rings.

5.4.4 All diversion shells, including sunction stage and the valve body, adopt mould orientation, and contacting ares should be equipped with seal components.

5.4.5 For the water filter nearby the sunction stage, the maximum dimension of its hole should not exceed 70% of the minimum pump flow. Total effective hole areas should not smaller than 5 times that of impeller inlet.

5.4.6 Cut-off valve should be set on top of pump working components. For the pump whose lift is quite low, when the pump is confirmed at halt mold, the cut-off valve can be omitted if pump working components can not be damaged by water pressure of backflow in the lifting pipe.

5.5 Motor

The attached motors should comply with GB/T 2818.

5.6 Water resistence cable

Extracted cables should comply with GB/T 5013.4

5.7 Hydrotest

For withstanding water pressure components, including diversion shells, valves and pump frames (elbow), shall bear hydrotest. At 1.5 times rated pressure, the test should last 5 minutes. And there shall be no leakage for the pump.

5.8 Anti-rust

5.8.1 For components made of steel and cast iron, its contacting surfaces should be coated with oil and non-contacting surfaces should be painted. Technical requirements of painting should comply with JB/T 5673.

5.8.2 Steel components, including inflow filters, cable covers, bolts and nuts should have undergone rust prevention.

5.8.3 After performance test, hydrops in the pump components should be removed and pump itself should undergo rust prevention.

5.9 Pump working components assembling

After assembling, rotation elements of pump should be checked, run smoothly and without stagnation.

5.10 Safety techniques

Pump safety techniques should comply with GB 10395.8

5.11 Reliability

Mean time to first failure (MTTFF) should more than 2500h under specified condition in this standard.

6 Test methods and inspection rules

6.1 Test methods

6.1.1 Analysis and calculation of pump performance and test results should comply with GB/T 12785-2014.

6.1.2 Designed motors for experiment are allowed to use in the test. And motor rated power should not more than 2 times of shaft power.

6.1.3 Pump reliability tests method should comply with JB/T 50080.

6.2 Inspection rules

6.2.1 Factory inspection

6.2.1.1 Test items are as follows:

a) Lift tests and pump input power tests in the condition of 0.8 time rated flow, rated flow, 1.2 times rated flow.

b) Safety sign check.

c) Pump pressure-bearing components hydrotest.

d) Antirust.

e) Assembling.

6.2.1.2 All the testing items in clause 6.2.1.1 should be checked. And every pump should be qualified and certificated by quality department before sale.

6.2.2 Type inspection

Type inspection should be conducted while following circumtances happen:

a) Trial-manufacture products or existing products manufactured in new plant.

b) Mass production spot-check, once a year generaly.

c) Structure, materials and technology changes, which may affect product performance.

d) Restart production after long shut-down period.

e) Factory inspection disqualification.

f) National quality supervision agencies request type test.

6.2.2.2 Test items are as follows:

a) b)、c)、d)、e) items in clause 6.2.1.1.

b) Measurement of pump characteristic curves (including head-flow curve, pump efficiency-flow curve, shaft power- flow curve).

c) Impeller static balance test.

Pump components check can replace impeller static balance test which can be conducted without disintegration (disintegration influencial factors should be considered while disintegration test is specially needed).

d) Axial hydro thrust test.

Axial hydro thrust test are normally conducted by using trial-manufacture pumps. For pumps in the same type and hydraulic model, axial hydro turust test can be conducted by using one specification pump and test results can be reckoned to be other specification pumps test results. While pumps hydraulic design or sealing clearance changes, axial hydro thrust test should be rerun.

e) Attached motor check.

f) Water-resistance cable check.

g) Reliability check.

h) Safety check.

6.2.2.3 The number of pumps used in type test should not less than 2

6.2.2.4 Spot check and judgement rules shall comply with GB/T 2828.1. Single sampling plan is recommended. The pump quantity for single inspection can be monthly production quantity or day production quantity or one order quantity. Inspection level is special inspection level S-1, acceptable quality limit (AQL) is 6.5.And acceptable quality limit can be confirmed by bilateral consultation.

7 Sign, package and storage

7.1 Sign

7.1.1 The product plate is fixed solidly on the pump frame or water discharge elbow. The size and technical requirements of the product plate shall comly with GB/T 13306. Information on the plate is as follows:

a) Factory name

b) Name, model and specification of the pump

c) Main technical parameters: flow(m^3/h), lift(m), efficiency(%), rotation speed(r/min), attached power(kW),total weight(kg)

d) Product standard

e) Manufactory number and date

7.1.2 Rotation sign should be set on the pump working component

7.2 Package

Product package should comply with GB/T 191 and GB/T 13384. The pump and related documents should not be lost and damaged while delivery.

7.3 Storage

Pumps, including its spare parts and accessories, should be antirust and not be damaged during storage.

8 Complete set pump and information

8.1 Complete set pump shall include:

a) All components specified in the assembly drawings, including motors, pump working components, lift pipes, pump frames or water discharge elbows, fasteners, water resistence cables and control cabinets;

b) Necessary attachments, including cable fasteners, cable covers, cable joints, foundation bolts and seal gaskets of lift pipe contacting area

c) Mounting and dismounting tools

d) Necessary accessories, including impellers, seal rings, bearing and shaft sleeves

Complete set pumps can be offered according to orders.

8.2 Following documents should be attached to the pump after selling

a) Instruction book

b) Packing list

c) Qualified certificate

Appendix A

(Normaltive)

Supplement curve of efficiency value

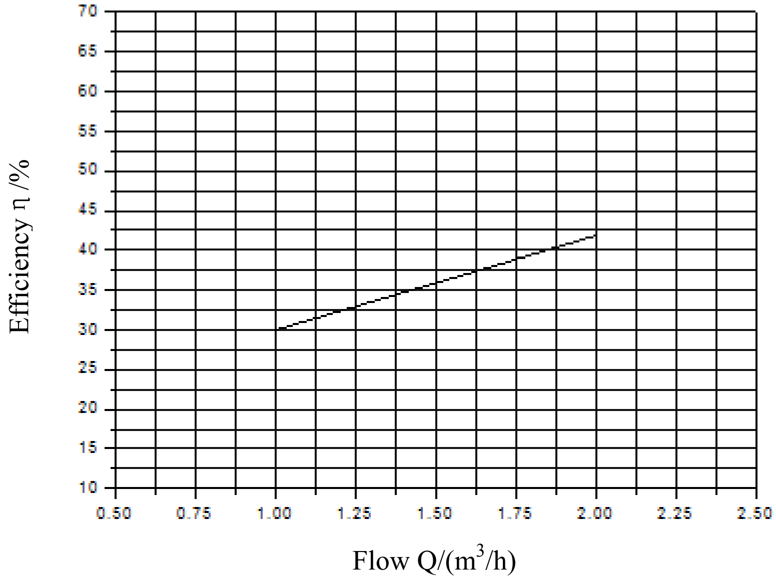


Figure A.1 75mm frame number series efficiency curve

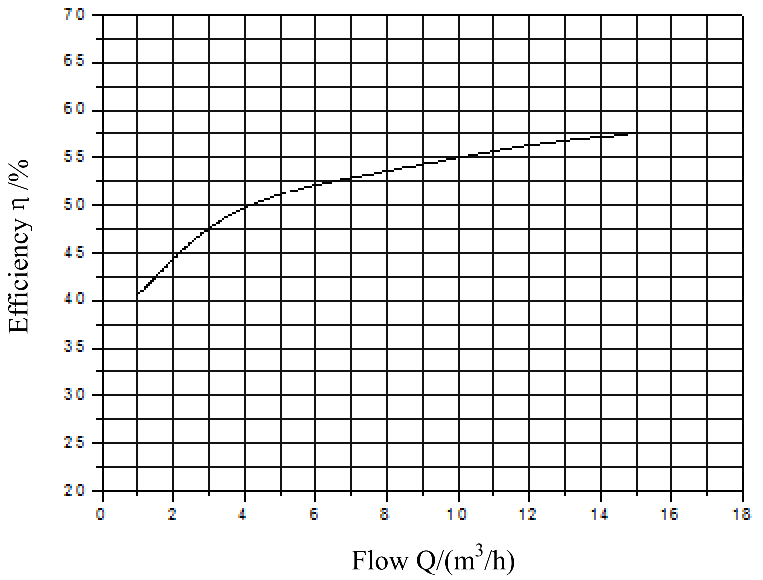


Figure A.2 100mm frame number series efficiency curve

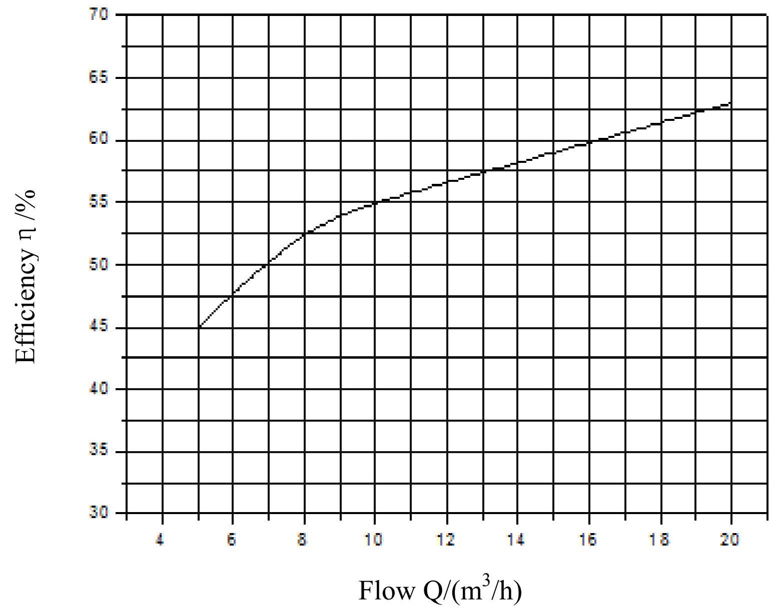


Figure A.3 125mm frame number series efficiency curve

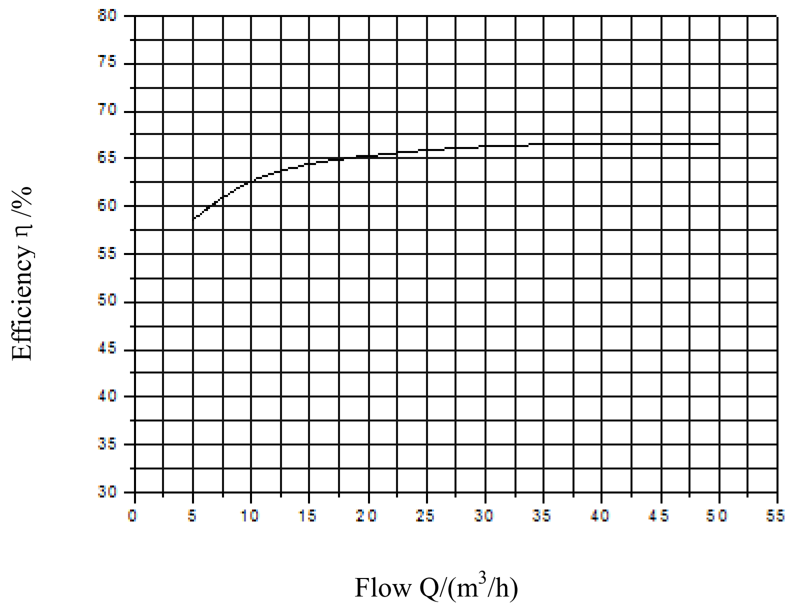


Figure A.4 150mm frame number series efficiency curve

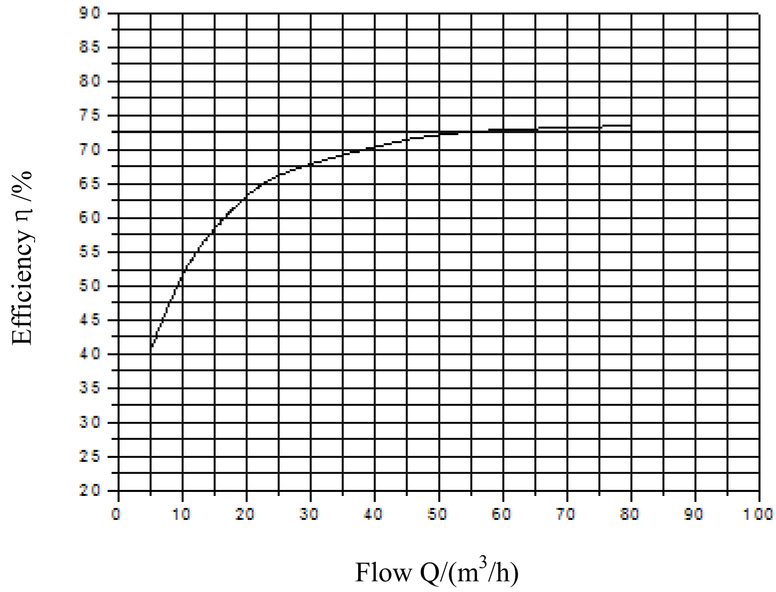


Figure A.5 175mm frame number series efficiency curve

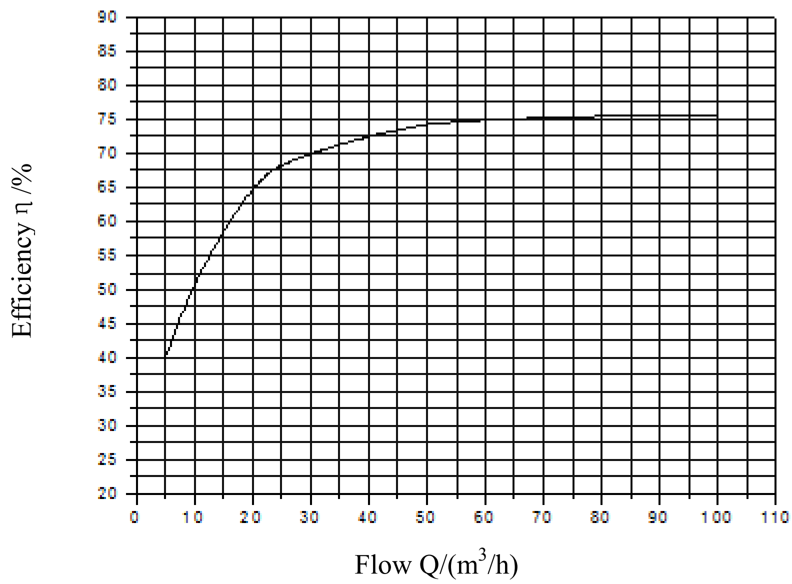


Figure A.6 200mm frame number series efficiency curve

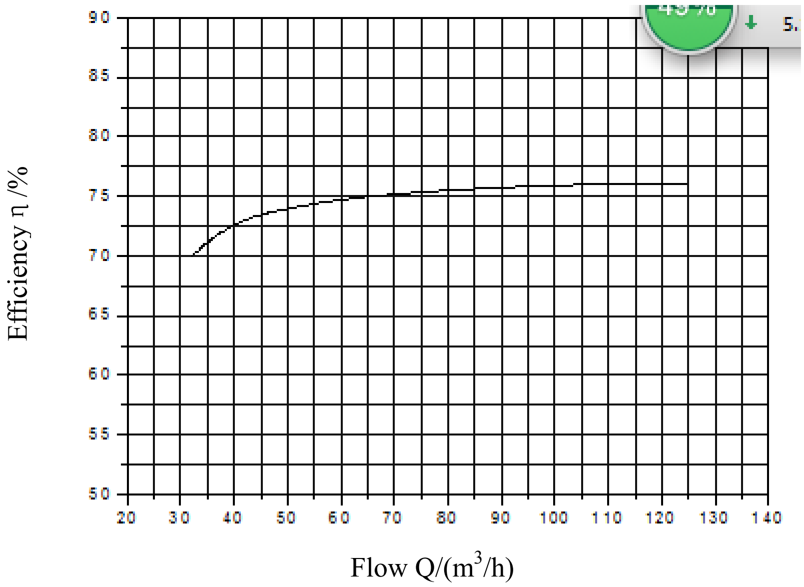


Figure A.7 225mm frame number series efficiency curve

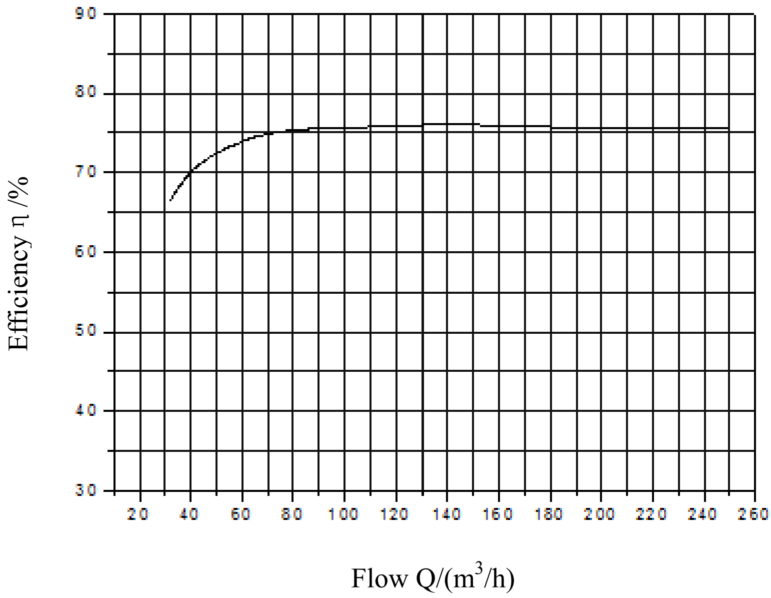


Figure A.8 250mm frame number series efficiency curve

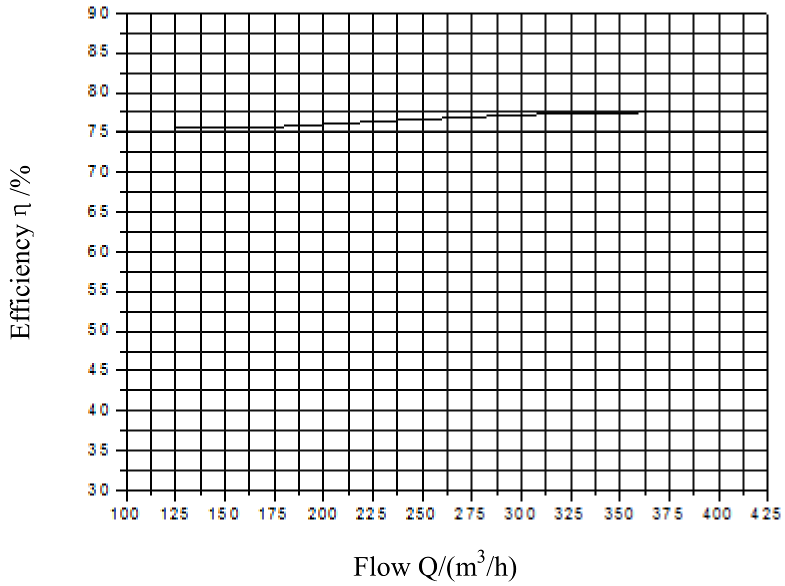


Figure A.9 300mm frame number series efficiency curve

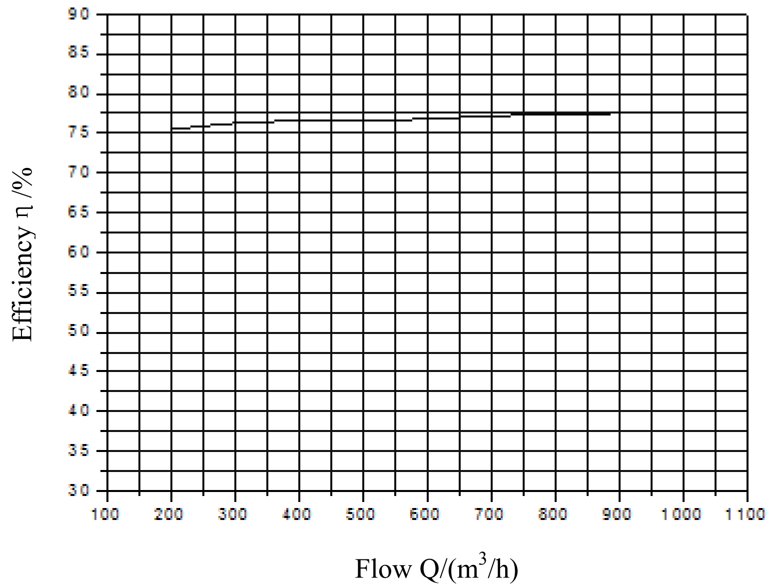


Figure A.10 350 mm,400 mm 500mm frame numbers series efficiency curve
（1450r/min）

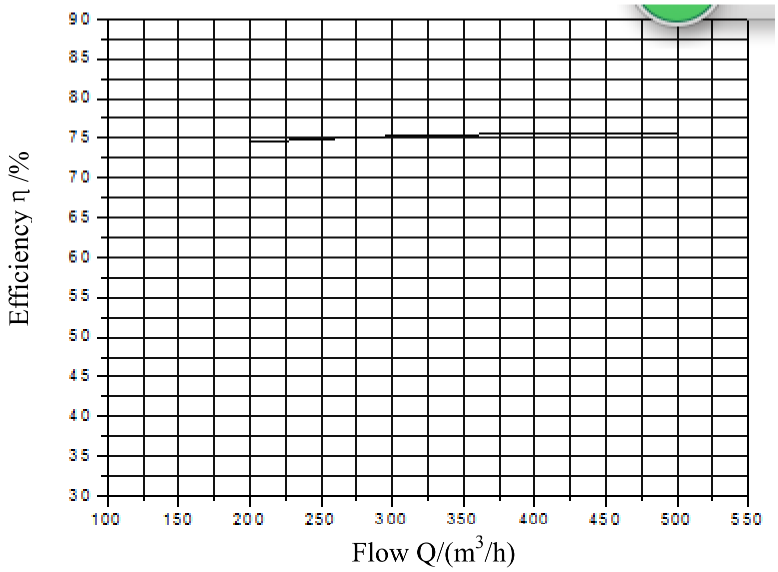


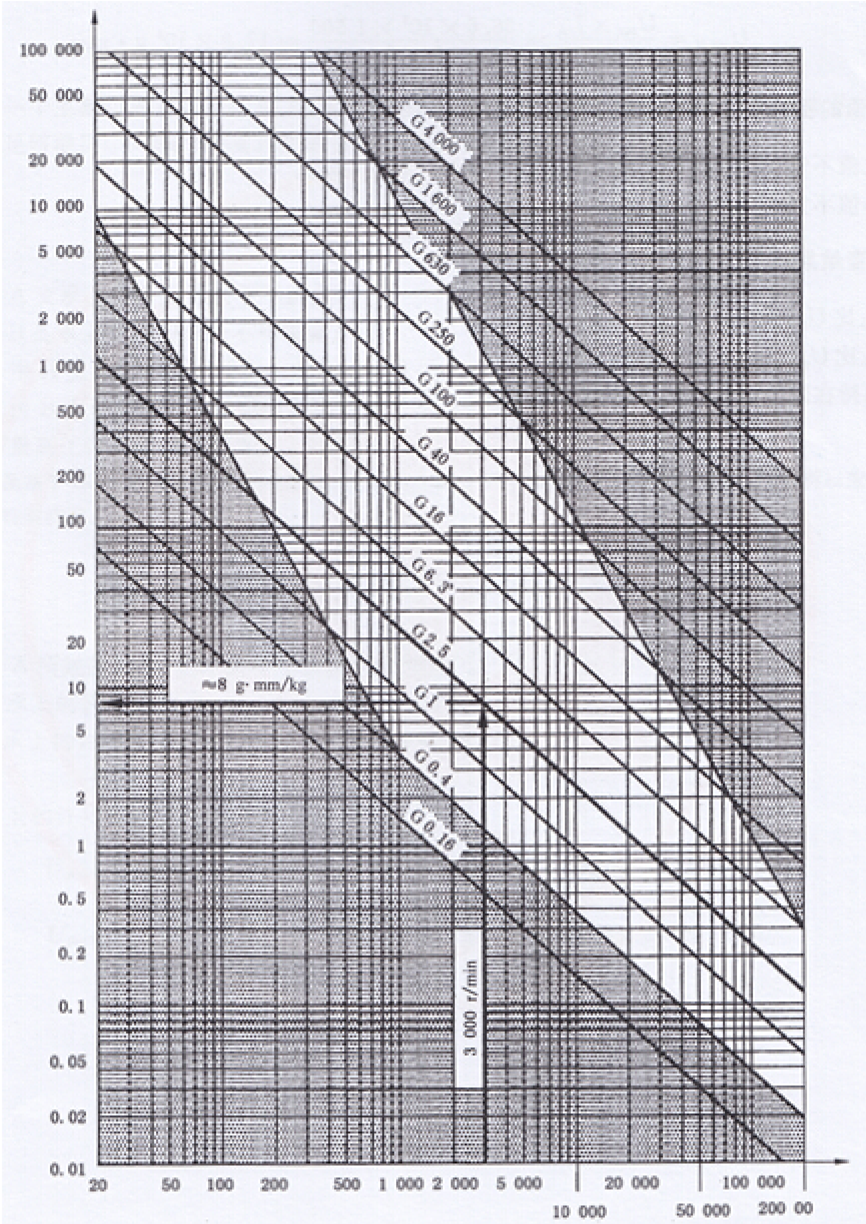
Figure A.11 350 mm,400 mm frame numbers series efficiency curve（2900r/min）

Appendix B

（Normaltive）

Permitted unbalance degree

Permitted unbalance degree $e_{per/}$ (g•mm/kg)



Rotation speed n/(r/min)

Figure B.1 Permitted unbalance degree