PRODUCT GUIDE

INTERNAL GEAR PUMPS
VANE PUMPS

CERTIFIED JQA MANAGEMENT SYSTEM QUALITY SYSTEM

ISO9001 Certified
JQA-2512

INTERNAL GEAR PUMPS

MAG PUMPS

INTERNAL GEAR PUMPS

SB-SERIES

INTERNAL GEAR PUMPS

G-SERIES

VANE PUMPS

VACUUM PUMPS

INTERNAL GEAR PUMPS

CLEANSABLE PUMPS

JAPANESE PATENT No.2845174

MAG PUMPS
VACUUM PUMPS

DAIDO MACHINERY CORPORATION

INTERNAL GEAR PUMPS

JAPANESE PATENT No.2845174

APPLICATIONS

■ **FOR CHEMICAL FLUIDS** ■ **FOR HIGH VISCOUS FLUIDS**
Paint (acrylic,water-soluble,solvent-soluble),magnetic paint,varnish,insulating varnish,emulsion,surfactant,DOP,bond, rosion,paste,ink,latex,adhesive,plastics,polycarbonate resin,acrylics,unsaturated polyester resin,alkyd resin,phenolic resin, melamine resin,polyurethane,polystyrene,AS resin,ABS resin,epoxy resin,vinyl acetate,artificial leather,polymer solution

■ **FOR HIGH AND LOW TEMPERATURE FLUIDS** ■ **FOR PETROCHEMICALS**
LPG,liquefied Freon,coal tar,pitch,hot melt,SK oil,Dowtherm oil,turbine oil,machine oil,heat transfer oil,thinner, gasoline, naphtha,alcohol,anthracene oil,Bunker"A"oil,Bunker"B"oil,Bunker"C"oil,light oil,kerosene,antifreeze,asphalt,wax,benzine, lubrication oil,grease,fatty acid,ester,solvent

■ **FOR FOODS**
Animal and vegetable oil,edible oil,soybean oil,rape oil,corn oil,rice bran oil,vitamin oil,lard,beef fat,butter,margarine, chocolate,millet jelly,sausage,curry roux,jam,molasses,sugar syrup,ice cream,candy,fish meal,pet food

FRONT VIEW OF GEARS

Casing front view (gear, pinion)

Casing cover front view (pinion pin)

FEATURES

Easy Maintenance
One point seal construction easily makes all wetted internal components disassembled, inspected and flushed. Maintenance requires no special expertise.

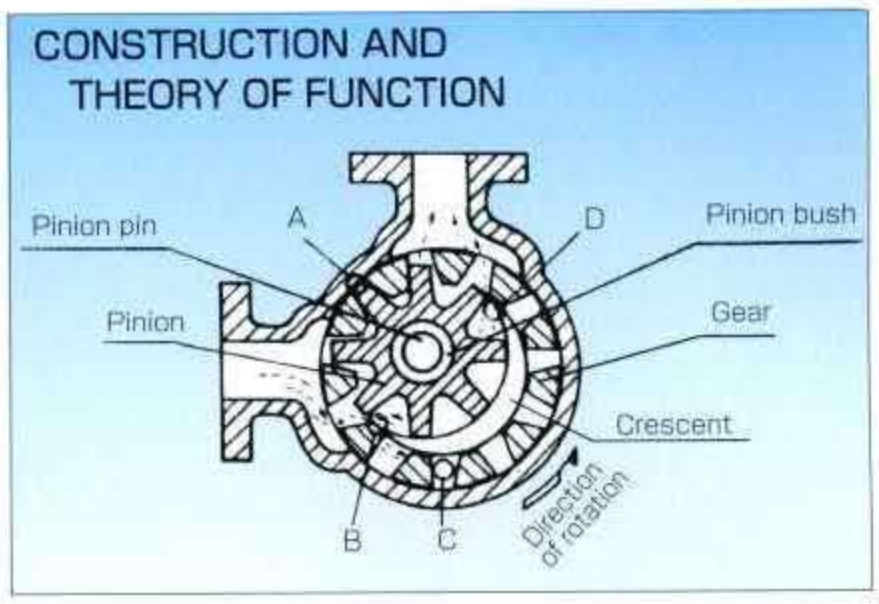
Wider Range of Applications
Capable to transfer all kinds of fluids and applicable to wider viscosity and temperature ranges.

Outstanding Durability
Outstanding durability is assured through carefully selected pump materials, advanced manufacturing techniques and special surface treatment of all sliding surfaces.

Improved NPSH
The combination of unique pump structure and gear tooth profiles produces a high vacuum and outstanding self-priming capability. Most suitable for drawing fluids out of underground tanks, drums and vacuum vessels.

Compliance with special requirements
Capable to meet with difficult transfer and hazardous operational requirements.

CONSTRUCTION AND THEORY OF FUNCTION



The gear assembly consists of a gear and a pinion. The gear is mounted on and driven by the main shaft, and the pinion fitted with pinion bush and supported on the pinion pin is driven by the gear. The center of the pinion is eccentric to the center of the gear. A crescent on the casing cover occupies the space between the external circle of the pinion and internal circle of the gear. The gear, mounted on the main shaft, rotates and drives the pinion.The pinion rotates inside of the crescent via pinion bush and the gear rotates outside of the crescent. The rotation transfers the fluid flooded between the gear and the pinion teeth to discharge port.

Point A: At this point, gear and pinion teeth are in perfect mesh, which acts as a seal between the suction and discharge ports.

Point B: As the gear and the pinion teeth begin to disengage, fluid is drawn into and floods the space between the gear and the pinion teeth.

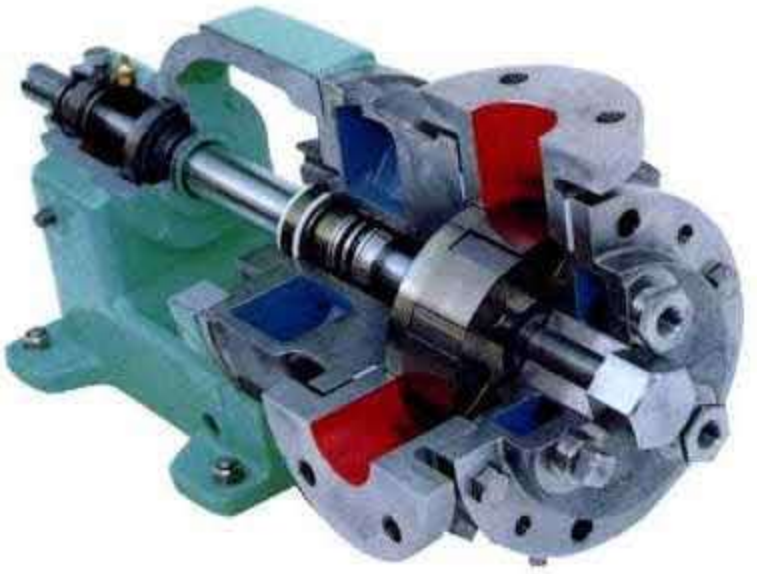
Point C: Fluid flooded between the gear and the pinion teeth is displaced to discharge port by gear rotation.

Point D: As the gear and the pinion teeth begin to mesh again, fluid is pressurized and forced out the discharge port.

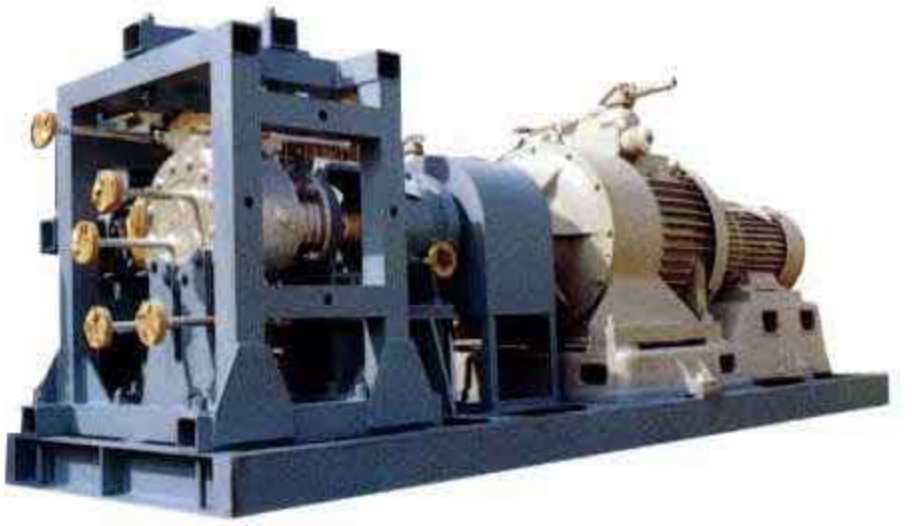
INTERNAL GEAR PUMPS G-SERIES

DAIDO INTERNAL GEAR PUMPS G-Series attract a high confidence from clients for their durability and reliability, thanks to many success stories in fluid transfer in chemical and various industries. Gears and pinions, which are essential components of gear pump, produced from our patented Taocloid™ gear tooth profile, demonstrate a longer service life and higher pump efficiency.

Equipped with wide variation of design to comply with growing needs, DAIDO INTERNAL GEAR PUMPS are capable of handling hard-to-transfer fluids (high viscosity fluids and slurries) under hostile conditions (high temperature and high pressure). Special design is provided for materials, structure and shaft seals.



Model N3G-ECM, full jacket type



High temperature fluid with slurry
Model 5G-ECA(s), 260~300℃

Large capacity model 9G-CM(s)
Total weight 13 ton

SPECIFICATIONS

- **Pressure:** 4.0MPaG max.
- **Temperature:** 450℃ max.
- **Viscosity:** 2.5million Pa·s max.
- **Discharge capacity:** 270m³/h max.

MATERIAL OF MAIN COMPONENTS

Casing, casing cover	Meehanite metal, FC250, FCD450, SCS13, SCS14, SCS16, SCS23
Gear, pinion	Meehanite metal, FCD450, SCS13, SCS14, S45C, SACM645, SUS630, BC
Pinion bush, neck bush	LBC, SACM645, FC200, carbon, ceramic, PTFE, SiC
Shaft	SCM435, SUS304, SUS316, SUS316L, SUS630

PERFORMANCE TABLE

Model No.	Port size, mm		Speed, min⁻¹	Machine oil, 100mPa·s 0.2MPaG		0.5MPaG		Speed, min⁻¹ appropriate to viscosity, mPa·s				
	Suction	Disch.		Capacity, m³/h	Motor rating,kW	Capacity, m³/h	Motor rating,kW	1,000	5,000	10,000	30,000	80,000
N0G	20	20	550	1.8	0.4	1.5	0.75	500	330	250	150	50
2G	25	25	500	3.0	0.75	2.7	1.5	450	330	250	150	50
N3G	40	40	500	6.6	1.5	6.0	2.2	450	300	230	140	50
3½G	50	50	450	10.2	2.2	9.0	3.7	400	300	230	140	50
4G	65	65	450	16.8	3.7	15	5.5	400	300	230	140	50
5G	80	80	450	27.0	5.5	24	7.5	380	280	210	130	40
6G	125	100	380	48.0	11	45	15	350	250	190	120	40
7G	150	150	250	84.0	22	78	37	250	180	130	80	30
8G	200	200	200	150	37	132	45	150	120	100	70	30
9G	250	250	150	210	45	192	55	100	100	70	50	20

※ New gear tooth profile Taocloid™ is applied to N0G and N3G.

INTERNAL GEAR PUMPS S, SB-SERIES

Compact and lightweight pumps with low running cost for general purpose, meeting requirements of the energy saving age.

Model 40SB30-A

Model 40S30-A

SPECIFICATIONS

- **Discharge pressure:** 0.7MPaG max.
- **Viscosity:** 50,000mPa·s max.
- **Temperature:** 80℃ nor., 150℃ max.

MATERIAL OF MAIN COMPONENTS

Casing, casing cover	Meehanite metal
Gear, pinion	Meehanite metal
Pinion bush, neck bush	LBC, carbon, ceramic
Shaft	SCM435

PERFORMANCE TABLE

Model No.	Port size, mm		Speed, min⁻¹	Machine oil, 100mPa·s				Speed, min⁻¹ appropriate to viscosity, mPa·s				
				0.2MPaG		0.5MPaG						
	Suction	Disch.		Capacity, m³/h	Motor rating,kW	Capacity, m³/h	Motor rating,kW	500	1,000	5,000	10,000	30,000
N40SB15(N40S15)	40	40	1,160	2.4	0.75	2.3	1.5	800	800	500	400	300
N40SB25(N40S25)	40	40	1,160	4.5	1.5	4.2	2.2	800	800	500	400	300
40SB30(40S30)	40	40	1,160	7.2	1.5	6.9	3.7	800	800	500	400	300
40SB40(40S40)	40	40	1,160	9.6	2.2	9.3	3.7	800	800	500	400	300
N50SB40	① 50	① 50	700	10.2	2.2	9.6	3.7	550	450	350	300	250
65SB45	① 65	① 65	700	16.2	3.7	15.6	5.5	550	450	350	300	250

※ Figures shown in the above table are valid only for the given operating conditions. Values will change corresponding to the actual fluid, material of pump and discharge pressure. ① Ports are of JIS 10k flange. All others are of JIS tapered pipe thread. New gear tooth profile Taocloid™ is applied to model no. with N.

INTERNAL GEAR PUMPS CLEANSABLE

Cleansable pumps are those pumps that internal wetted surfaces are easy to flush without disassembly. Thanks to utmost pursuit in flushing individual components, difficult flushing works are easily done without removing pipe and casing cover, but only with circulating cleanser liquids.

FEATURES

- Vertical installation arrangement eliminates fluid residue and requires minimum cleanser consumption for satisfactory cleansing.
- Shaft seal is so structured that cleanser liquid circulates by means of internal differential pressure. Without affecting either discharge pressure or discharge flow, pump keeps running.
- Hard-to-flush gear drive end is cleansable by circulating cleanser liquid through small holes.
- Wetted components are coated with PTFE except for sliding surfaces to prevent fluid residue from adhering to interior surface.

APPLICATIONS

- Best suited to chemical pumps which transfer different fluids and require frequent fluid change.
- Best suited to paint pumps which require frequent color change.
- Infinitely suited to other applications complying with customers' idea.

REPRESENTING PERFORMANCE

Model:EGX26, port size:2S, max. temp.:80℃, capacity:5.4m³/hr, discharge press.:0.5MPaG, speed:380rpm, motor:3.7KW, viscosity:1～5,000mPa·s

INTERNAL GEAR PUMPS MAG-SERIES

MAG PUMPS

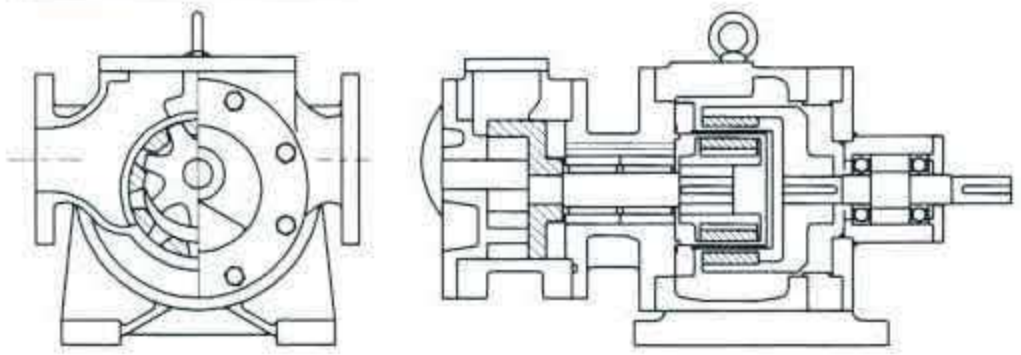
FEATURES

- DAIDO MAG PUMPS are equipped with magnetic couplings which use magnetic force transmitted from a motor-driven outer magnetic coupling through a shroud to an inner magnetic coupling mounted on the pump shaft. The shroud contains fluid around pump shaft, prevents fluid from leakage and attains complete shutout of contaminants and fume dispersion in the neighborhood of pump installation.
- DAIDO MAG PUMPS are leak-proof, maintenance-and repair-free and easy-to-use, by eliminating shaft seal, maintenance, inspection and repair.
- DAIDO MAG PUMPS reduce substantially life cycle costs, by eliminating spare parts of gland packing, mechanical seal and monitoring system.
- DAIDO MAG PUMPS are suitable, complying with severe regulations of environment, safety and fire prevention, for saving expensive fluid, environmental preservation, and public nuisance prevention from handling toxic and corrosive fluids.

DRIVE ARRANGEMENTS

- Direct-coupled with motor
- Direct-coupled with stepless variator
- With bearing box attached
  (V-belt drive,direct-coupled,etc)

SECTIONAL STRUCTURE VIEW



APPLICATIONS

- **Petrochemical industry:** Hydrocarbon, polymer
- **Chemical industry:** Fine chemicals, synthetic resin, isocyanate resin, plastics, synthetic fiber, solvent, acid, alkali
- **Paint industry:** Paint, varnish, dyestuff, printing ink, adhesive, additive
- **Oil and fat industry:** Soap,surfactant,shampoo,rinse, animal fat and vegetable oil
- **Pharmaceutical industry:** Toxic material, dangerous material, poison, deadly poison

MATERIAL OF MAIN COMPONENTS

Casing,casing cover	SCS13,SCS14
Gear	SUS316
Pinion	SUS316,PEEK
Shaft(driving shaft)	SUS316
Rotor bearing	SiC

PERFORMANCE TABLE

Model	Port size, mm	Max.temp, ℃	Viscosity, mPa·s	Capacity, m³/h	Total press, MPa	Speed, min⁻¹	Motor rating, kW
M04	40	110	5	1.8	0.5	1200	1.5
			300	2.1	0.6	1000	1.5
			1000	1.8	0.6	900	1.5
			5000	0.9	0.5	400	1.5
M05	40	110	5	2.4	0.5	1200	1.5
			300	2.7	0.6	1000	1.5
			1000	2.4	0.6	900	2.2
			5000	1.2	0.5	400	1.5
M07	40	110	5	3.6	0.5	1200	1.5
			300	3.6	0.6	1000	2.2
			1000	3.6	0.6	900	3.7
			5000	1.5	0.6	400	2.2
M10	50	110	5	4.8	0.5	1200	2.2
			300	5.4	0.6	1000	3.7
			1000	4.2	0.6	800	3.7
M15	50	110	5	7.2	0.5	1200	3.7
			300	7.8	0.6	1000	3.7
			1000	6.0	0.6	800	5.5
M26	65	110	5	10.8	0.5	1000	5.5
			300	11.4	0.5	800	5.5
			1000	8.4	0.4	600	3.7

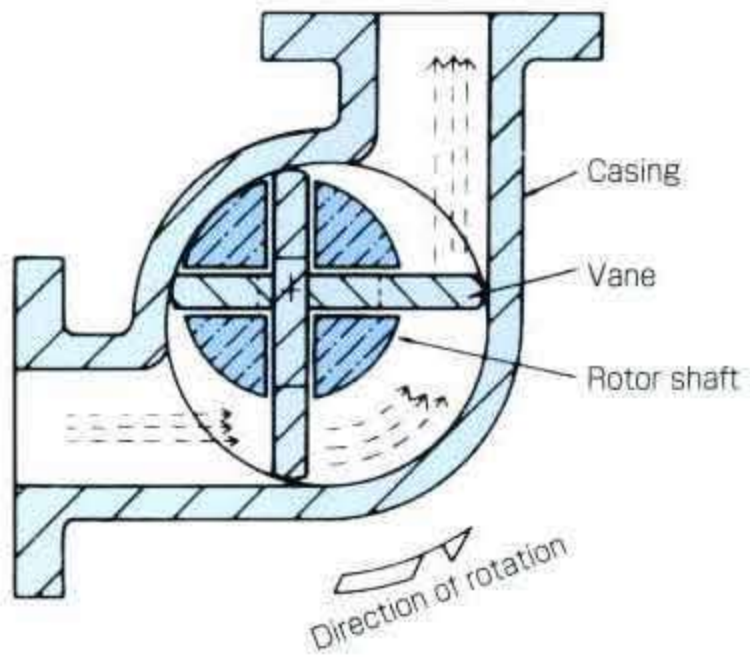
VANE PUMPS

When the rotor shaft rotates, which is eccentrically installed to the center of the casing bore, two vanes alternately slide, and pressurize fluid to transfer.

As shown in the figure below, the construction is extremely simple, with two sliding vanes inserted into the rotor shaft slots. This simple construction assures very easy cleaning, disassembly and less costly maintenance.

CONSTRUCTION

Model 5V-AH, directly coupled with gear reducer



SPECIFICATIONS

- **Discharge pressure:** 0.5MPaG max.
- **Viscosity:** 2.0million Pa·s max.
- **Temperature:** 80℃ max.

APPLICATIONS

- **Foodstuffs:** Chocolate, millet jelly, curry roux, fish meat, sausage
- **Paints:** Paint, putty
- **Chemicals:** Dye, grease, resin, latex compound, emulsions

Rotor plate (Vane)

MATERIAL OF MAIN COMPONENTS

Casing, casing cover	FCD450, SC46, SCS13, SCS14, SCS16
Rotor plate (vane)	SUS304, SUS316, BC, FRP
Shaft (rotor shaft)	SCM435, SUS304, SUS316, SUS316L

The surface shall be hardened, if necessary, corresponding to the fluids and specifications,except for FRP.

PERFORMANCE TABLE

Model No.	Port size, mm	100mPa·s, 0.1MPaG			Optimum speed, min^{-1} appropriate to viscosity, mPa·s				
		Speed, min^{-1}	Capacity, m^3/h	Motor rating, kW	1,000	5,000	10,000	30,000	80,000
2V	40	150	2.7	0.75	150	120	100	90	50
3V	50	120	5.4	1.5	120	100	90	75	40
4V	65	120	9.0	2.2	120	100	90	75	40
5V	100	120	16.2	3.7	120	100	75	75	40
6V	125	120	21.6	5.5	120	100	75	75	40

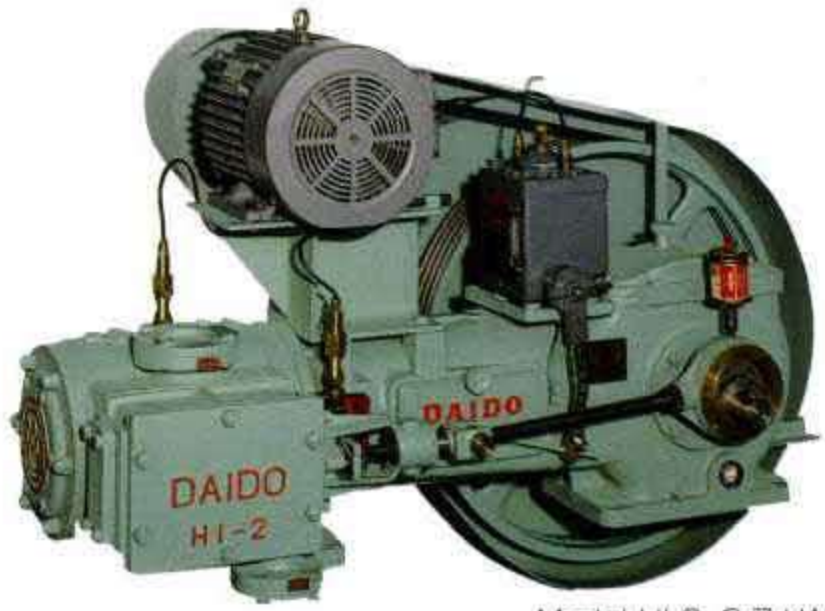
VACUUM PUMPS

MODEL AND FEATURES

Model HI

Type: Slide valve, single stage, reciprocating, horizontal, water-cooled
Ultimate pressure: 800~467Pa
Pumping speed: 2.0 to 38.4m³/min

Standard accessories: Companion flanges, V-pulley, V-belts, belt cover, automatic lubricator, foundation bolts



Model HI-2, 3.7 kW

Model HT

Type: Slide valve, double stage, reciprocating, horizontal, water-cooled
Ultimate pressure: 67~9 Pa
Pumping speed: 2.0 to 38.4m³/min

Standard accessories: Companion flanges, V-pulley, V-belts, belt cover, automatic lubricator, foundation bolts

Model HT-4, 7.5 kW

PERFORMANCE TABLE

(1torr≒1.333×10²Pa)

Model No. HI-, HT-	Port size, mm		Speed, min⁻¹	Theoretical pumping speed, m³/min	Ultimate pressure, Pa		Motor rating, kW	
	Suction	Disch.			HI-	HT-	HI-	HT-
2	65	50	220	2.0	800	67	3.7	3.7
3	80	65	220	3.14	800	67	5.5	5.5
4	80	65	200	3.8	800	67	5.5	7.5
4 1/2	100	80	180	4.93	800	67	7.5	11
5	100	80	180	6.7	800	67	11	11
6	100	90	170	7.95	800	53	11	15
8	150	100	170	12.45	667	13	15	22
9	150	125	170	15.75	533	11	22	30
10	150	125	160	18.0	533	11	22	37
11	175	125	160	21.5	467	11	30	37
14	225	200	150	38.4	467	9	45	75

※ Specification and design of products described in the product guide are subject to modification for improvement without preliminary notice.