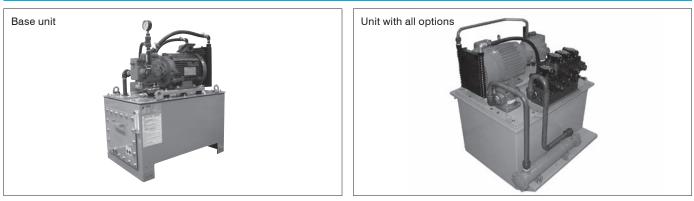
NT Series SSS MARK-II



Features

Extensive variations

A wide range of control functions and other options such as fluid level switches, temperature switches and water coolers, is available in an easy-to-install modular format.

The energy-saving performance of the V series pump can be further enhanced by adding the optional feathering pump control.

• Low oil temperature rise

All models are equipped with an oil cooler as standard. Maintaining the fluid at a low temperature gives it a long service life. • Space saving

The compact design has reduced the footprint to 70 to 74% of the conventional models.

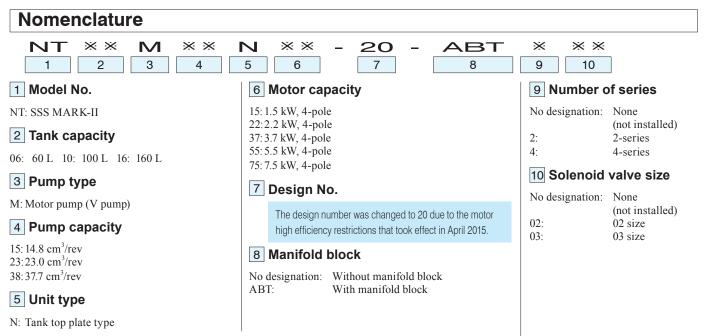
The design of the mounting holes has allowance in all directions and the tank top plate can be mounted in the 180° opposite direction.

Low noise

All models are equipped with vibration-absorbing rubber pads as standard.

Control valves installable

Options enabling installation of a control valves are available (-ABT ***).



Refer to Page A-8 for details of V series piston pumps incorporated into these units.

Series table

	Pump capacity	1	5 (14.8 cm ³ /rev	23 (23.0	cm ³ /rev)	38 (37.7 cm ³ /rev)		
	Motor capacity	1.5 kW	2.2 kW	3.7 kW	3.7 kW	5.5 kW	5.5 kW	7.5 kW
	60 L	√	~	√				
Tank capacity	100 L		~	~	~	~		
	160 L				~	~	~	✓

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Specifications

	Pump discharge rate L/min at 50/60 Hz (1.0 MPa)	Tank capacity L	Motor capacity Output kW (Number of poles: 4)	Mass kg	Rated pressure MPa {kgf/cm ² }	Maximum operating pressure MPa {kgf/cm ² }		
NT06M15N15-20			1.5	110				
NT06M15N22-20		60	2.2	118				
NT06M15N37-20	20/25		3.7	130				
NT10M15N22-20			2.2	128				
NT10M15N37-20		100	0.7	140		04.0		
NT10M23N37-20		100	3.7	150		21.0 {210}		
NT10M23N55-20	22/40		5.5	170	{140}	{210}		
NT16M23N37-20	33/40		3.7	175				
NT16M23N55-20		160	F F	195				
NT16M38N55-20	55/00	160	5.5	200				
NT16M38N75-20	55/66		7.5	210				

Note: Rated pressure:

Pressure at which the maximum load does not exceed 175% of the rated capacity of the motor with the pump discharge rate set to minimum

Maintain the average shaft input of the motor at no greater than 100%.

Maximum operating pressure:

Pressure at which the motor can be started with the pump discharge rate set to minimum

Maintain the maximum load at no greater than 160% (15 seconds) and average shaft input at no greater than 100%. With the standard specifications, the pressure is set to 3.5 MPa and the flow rate is set to the maximum discharge rate at shipment.

Standard power supply is AC 200/220 V at 50/60 Hz for motors.

Consult Daikin for different voltages [380 V (50 Hz), 400 V (50/60 Hz), 415 V (50 Hz), 440 V (60 Hz), 460 V (60 Hz)]

• The models with the following model codes that incorporate a manifold are available as a product series.

Since a manifold block is preinstalled, solenoid valves and modular stack valves can be mounted easily. The manifold blocks are fitted with blocking blocks (BS-******). Remove them when mounting solenoid valves and modular stack valves.

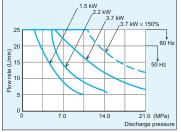
Standard model code	Option code	Number of series	Solenoid valve size		Number of series	Solenoid valve size	Option code	Number of series	Solenoid valve size	Option code	Number of series	Solenoid valve size
NT06M15N15-20	-ABT202	2	02	-ABT402	4	02		_			_	
NT06M15N22-20	-ABT202	2	02	-ABT402	4	02		_			_	
NT06M15N37-20	-ABT202	2	02	-ABT402	4	02		_			_	
NT10M15N22-20	-ABT202	2	02	-ABT402	4	02		_			_	
NT10M15N37-20	-ABT202	2	02	-ABT402	4	02		_		—		
NT10M23N37-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03
NT10M23N55-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03
NT16M23N37-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03
NT16M23N55-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03
NT16M38N55-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03
NT16M38N75-20	-ABT202	2	02	-ABT402	4	02	-ABT203	2	03	-ABT403	4	03

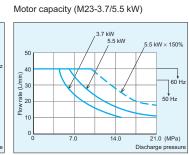
Paint color

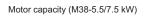
JMPA code Y59-60H (Munsell code 10BG6/4) Blue-green colors Motors, pumps, and purchased parts are in the standard colors of the manufacturers. Tank: Baking finish

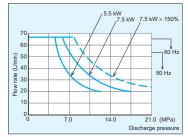
Quick-reference charts for motor selection

Motor capacity (M15-1.5/2.2/3.7 kW)









Handling

Hydraulic fluid, ambient environment

- \odot Use a petroleum-based hydraulic fluid equivalent to ISO VG32 to 46. For pressures higher than 7 MPa use wear-resistant hydraulic fluid.
 - Use of hydraulic fluids other than the petroleum-based type (e.g. hydrous/synthetic) is prohibited.
- O Operate the unit in an environment where both the following conditions are satisfied: viscosity range from 15 to 400 mm^2 /s and oil temperature from 0 to 60°C.
- \odot Be sure to maintain the water content in the hydraulic fluid at 0.1% maximum by volume.
- Contamination of the hydraulic fluid causes device trouble and reduces the service life, so pay due attention to controlling contamination and ensure that it goes no higher than NAS contamination class 9. (NAS contamination class 10 is permitted for operating pressures of 7 MPa or lower.)
- \bigcirc Use the unit indoors under the following conditions.

Ambient temperature: 0 to 35°C, Ambient humidity: 20 to 90%RH (with no condensation)

If using the unit where there is a lot of dust or oil mist, clean it periodically by applying compressed air or by other means since the oil cooler is prone to clogging in such environments.

At start

 \odot Fill the pump case with hydraulic fluid through the filler port before starting trial operation, after replacing the pump, or after stopping the unit for 6 months or longer. Use the same hydraulic fluid as for the hydraulic circuit.

	NT××M15	NT**M23	NT**M38
Pump case capacity cm ³	500	500	900

• After checking that all hydraulic circuits and electrical circuits are ready for operation, set the hydraulic circuit at the load side in the no-load status or connect an unloading circuit before starting the pump.

When the pump is driven for the first time, turn the power switch to the motor on and off a few times to let the air out of the piping and then run it continuously at full speed. A roaring noise may be observed until the air has been completely removed but this is not abnormal.

• Check that the pressure rises at the pressure gauge.

Electric wiring

• Connect the power cable such that the phases at the pump motor and power supply sides are as shown below.

Motor side
$$\begin{bmatrix} U & --- R \\ V & --- S \\ W & --- T \end{bmatrix}$$
 Power supply side

Check that the pressure rises at the pressure gauge.

If the motor rotates in the reverse direction, switch the connection between two phases among the three to correct the direction of rotation.

- \bigcirc Be sure to connect the ground terminal.
- \bigcirc Install a no-fuse breaker and an earth leakage breaker on the main power supply.
- The electrical ratings are as shown in the table to the right.

^O These are premium efficiency products and therefore they tend to have a higher current value than products with the previous design. Pay attention to the design of the power distribution when replacing products of the previous design.

<motor rating="" ta<="" th=""><th colspan="13"><motor (rated="" current)="" rating="" table=""> Permissible voltage fluctuation: ±1</motor></th></motor>	<motor (rated="" current)="" rating="" table=""> Permissible voltage fluctuation: ±1</motor>												
Motor capacity		Rated current (A)		Starting current (A)									
Output kW (Number of poles: 4P)	AC 200 V (50 Hz)	AC 200 V (60 Hz)	AC 220 V (60 Hz)	AC 200 V (50 Hz)	AC 200 V (60 Hz)	AC 220 V (60 Hz)							
1.5	6.8	6.4	6.0	46.6	41.0	45.1							
2.2	10.6	9.4	9.2	96.0	81.0	89.1							
3.7	15.6	14.6	13.8	134.0	118.0	130.0							
5.5	23.4	21.4	20.6	200.0	166.0	183.0							
7.5	30.8	28.6	27.4	264.0	218.0	240.0							

Transportation

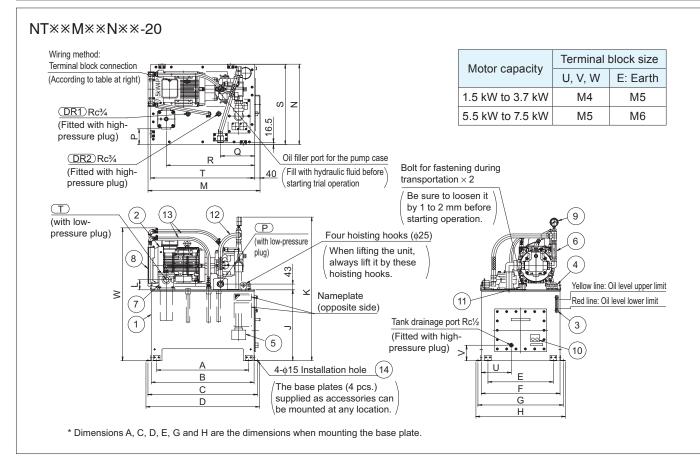
 \odot When transporting or hoisting the unit, use the hoisting hooks (ϕ 25 holes at 4 locations) or a fork lift truck.

• When using a fork lift truck, take due care to ensure that it will not topple over because an appropriate fork span cannot be secured.

Installation

- \bigcirc The unit is a stationary type. Fix it on a level location that is free of vibration.
- Mount the foundation plates (4 pcs.) provided as accessories at appropriate positions according to the installation conditions. (8 mounting positions provided)

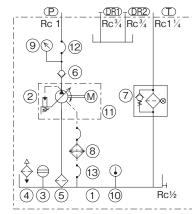
External dimension diagram



Model	Motor	Wiring port	Α	В	С	D	Е	F	G	Н	J	К	L	М	N	Ρ	Q	R	S	Т	U	V	W
NT06M15N15-20	1.5kW-4P		500	580	630	660	340	440	490	520	411	852	53	647	454	70	217	505	450	590	135	116	841
NT06M15N22-20	2.2kW-4P		500	580	630	660	340	440	490	520	411	862	53	647	454	70	217	505	450	590	135	116	821
NT06M15N37-20	3.7kW-4P		500	580	630	660	340	440	490	520	411	874	53	662	454	70	217	505	450	590	135	116	821
NT10M15N22-20	2.2kW-4P	φ27	650	730	780	810	390	490	540	570	461	912	53	782	504	70	262	636	500	740	175	116	871
NT10M15N37-20	3.7kW-4P		650	730	780	810	390	490	540	570	461	924	53	782	504	70	262	636	500	740	175	116	871
NT10M23N37-20	3.7 KVV-4P		650	730	780	810	390	490	540	570	461	986	53	782	504	70	262	636	500	740	175	116	887
NT10M23N55-20	5.5kW-4P	φ 3 5	650	730	780	810	390	490	540	570	461	1006	53	782	504	70	262	636	500	740	175	116	925
NT16M23N37-20	3.7kW-4P	φ27	690	770	820	850	490	590	640	670	531	1056	76	822	604	116	257	663	600	780	225	116	957
NT16M23N55-20	5.5kW-4P		690	770	820	850	490	590	640	670	531	1076	76	822	604	116	257	663	600	780	225	116	995
NT16M38N55-20	0.0KW-4P	φ35	690	770	820	850	490	590	640	670	531	1076	76	840	604	116	257	663	600	780	225	116	995
NT16M38N75-20	7.5kW-4P	-4P	690	770	820	850	490	590	640	670	531	1076	76	840	604	116	257	663	600	780	225	116	995

Model	Port P	Port T		
NT06M15N15-20				
NT06M15N22-20	Rc½	Rc¾		
NT06M15N37-20				
NT10M15N22-20	Rc ¹ /2			
NT10M15N37-20	RC/2	Rc ³ ⁄4		
NT10M23N37-20	Rc ³ ⁄4	RC74		
NT10M23N55-20	RC74			
NT16M23N37-20	Rc¾			
NT16M23N55-20	RC74	Rc1-1/4		
NT16M38N55-20	Rc1	KU1-74		
NT16M38N75-20	RCI			

Hydraulic circuit diagram



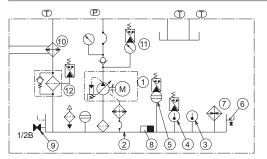
Devices used

Part No.	Name	Part No.	Name
1	Oil tank	8	Oil cooler
2	Motor pump	9	Pressure gauge
3	Oil level gauge	10	Thermo label
4	Oil filler port with air breather	11	Vibration-absorbing rubber
5	Suction strainer	12	High-pressure hose
6	Inline check valve	13	Low-pressure hose
7	Return filter	14	Foundation plate

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Power unit options



- * When selecting an option, enter a circle or the required quantity in the option selection table and submit it when placing the order.
- * The codes in the circuit diagram correspond to those in the table below.

Overview of options

Code		Item	Description
(1) (1)		Pressure	 Sharp cutoff characteristics are achieved. The pressure and flow rate can be adjusted as necessary.
(1) (2)	method	Pressure feedback method combination control	 The operation mode can be switched between high-pressure low-quantity and low-pressure high-quantity with a single pump by pressure feedback method.
(1) (3)	Pump control method	Solenoid operated method combination control	• The control shown to the right can be performed by switching the solenoid valve incorporated in the pump.
			• Sets the high-pressure cutoff characteristics of the pump to feathering status (extremely low pressure).
(1) (4)		Feathering pump control	Pressure Pressure Pressure
			This function is effective for saving energy while the machine is at stand-by.
2	Tan	k	Manufacture water fill test can be performed as an option. Consult Daikin if it is necessary to comply with the Fire Service Act since the parts to be used will differ.
3	The	ermometer	
			Enables visual monitoring of the fluid temperature. (0 to 100°C, ϕ 40) For fluid temperature upper limit alarm: Outputs an alarm when 65°C is exceeded.
4	Ten	nperature switch	For heater control: Stops the heater when 20°C is exceeded.
5	Elui	d level switch	For fluid level lower limit detection: Detects insufficient level of fluid.
-	Tiu		For fluid level upper limit detection: Detects excessive level of fluid to prevent overflow.
6	Oil	pan	Accumulates fluid so that it will not spill over the floor. Environmentally friendly option.
7	Ele	ctric heater	 Used in an environment where the unit may be started at a low temperature (0°C or lower) such as in cold regions. The heater is equipped with a dry operation prevention sensor. Warm-up operation of the unit increases the temperature by approximately 5°C/hr, and it is advisable to stop the heater when the temperature reaches a certain level using the heater control temperature switch. (Heater capacity: 1 kW)
8		gnet contaminant aretor	 Used to remove fine metal chips and contaminant contained in hydraulic fluid when hydraulic fluid contamination level needs to be controlled. (To be mounted/removed through the cleaning port) Installing 1 pc for 60 to 100 L tank and 2 pcs for 160 L
9	Tan	k drain valve	Used to facilitate oil replacement by arranging a ball valve (JIS 1/2B) at the drain port of the fluid tank. The port is plugged as standard.
10	Wa	ter cooler	 Used to cool fluid when the fluid in the tank reaches a high temperature. To determine whether a cooler is necessary or not, see the quick-reference chart provided in the SSS MARK-II brochure. For details of cooling capacities, see the information on LT coolers. Fluid temperature can be controlled using the optional temperature control water valve.
(1)	Pre	ssure switch	 Used for detecting a main pressure drop. Standard setting at shipment: Open at 2.0 MPa or lower. There are two types of switches, mechanical and electronic.
(12)		urn filter ctric alarm switch	• Used for the filter clogging alarm. Provided with C type contact.
13	Uni	t orientation	• Only the tank top plate can be mounted in the 180° reversed orientation (even after the delivery of the unit).
14	Ter	minal box	 A terminal box that can be mounted on the unit, with a size of 300 mm × 200 mm × 105 mm (W × H × D). No terminal block is supplied with the terminal box. One DIN rail is attached.
15	Ele	ctric wiring	 Wiring from electrical control devices to the terminal box. Up to 30 pins supported. A rail type terminal block with TDT touch-down structure is used. A 2-row type terminal block is used when more than 15 pins are required. VCT cables are used with M3 round crimp-style terminals. Note that the wiring for the motor and electric heater needs to be directly connected to their terminal boxes. No wiring port is provided for wiring by the user. Note that the terminal numbers are predetermined.
16	Spe	ecified color	 Recoating with epoxy-based paint. The pressure gauge and hoses are masked, and also the cables, if there are any. Standard color: JMPA code Y59-60H (Munsell code 10BG6/4) When using specified colors, specify the JMPA code.

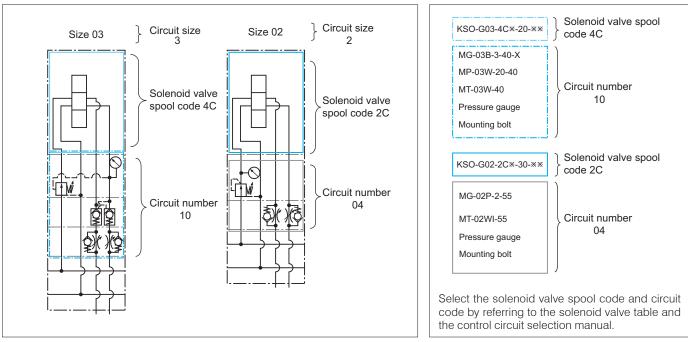
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Component parts

UNIT EQUIPMENT

List of control circuits/solenoid valves

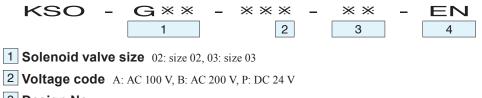
Control circuit expressions



Solenoid valve table

Category	Solenoid valve spool code	Graphic symbol	Model	Category	Solenoid valve spool code	Graphic symbol	Model
All ports blocked at center position (closed center)	2C×		KSO-G02-2C*-30-EN KSO-G03-2C*-20-EN	Ports A/B/T open (port P blocked) at center position Ports A/B throttled at center position	44C*		KSO-G02-44C*-30-EN KSO-G03-44C*-20-EN
Spring offset $(P \rightarrow A, B \rightarrow T)$	2B*		KSO-G02-2B*-30-EN KSO-G03-2B*-20-EN	Ports P/T open at center position (tandem center)	66C×		KSO-G02-66C*-30-EN KSO-G03-66C*-20-EN
No-spring type (with detent)	2D×		KSO-G02-2D*-30-EN KSO-G03-2D*-20-EN	Spring offset $(P \rightarrow B, A \rightarrow T)$	2A*		KSO-G02-2A*-30-EN KSO-G03-2A*-20-EN
Ports A/B/T open (port P blocked) at center position	4C×		KSO-G02-4C*-30-EN KSO-G03-4C*-20-EN				

General solenoid valve model code



- 3 Design No.
- 4 CE specifications, with surge killer

Note that AC 200 V specifications do not comply with CE specifications.

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Option selection table

Item					Des	ription								
Item					Dest					athoring				
Pump control	Pressure compensator control	Pressure feedb method combin control		Solenoid o method cor control	•	Pressure control	comp	ensator	Pressure f	eathering feedback ombination		id operated I combination		
	A	В		(С		D			E		F		
Pressure	[]	High-pres	sure sid	· ·		Г	1		High	High-pressure side [] MPa				
at 50/60 Hz	L J MPa	Low-pres		<u> </u>		L	1	MPa		w-pressure side [] MPa				
Standard Setting	[3.5] MPa	<u> </u>		e [7.0] MF e [3.5] MF		3.5]	MPa		igh-pressure side [7.0] MPa ow-pressure side [3.5] MPa				
Flow rate		High-qua	ntity side	e [/]L/r	min			,	High	High-quantity side [/] L/min				
at 50/60 Hz	[/] L/min	Low-quar	ntity side	[/]L/r	min	[/] L/min	Low	-quantity side	[/] L/min		
		High-quantity side	e: Same a	s for pressure	compensator				High-quant	ity side: Same a	s for pres	sure compensator		
Standard		Low-	15%	3 L/min at 6	60 Hz				Low-	*M15* 3	L/min a	at 60 Hz		
Setting		i aida í		6 L/min at 6		-			quantity side			at 60 Hz		
Motor power		× 1V	138× 1	0 L/min at 6	60 HZ					I		at 60 Hz		
supply	N: Standard AC 200/2	20 V				380 V (50) Hz), 4	00 V (50/	60 Hz), 415	V (50 Hz), 440	V (60 Hz	z), 460 V (60 Hz)		
Tank specifications	N: Standard (3.2 mm v	vall thickness, to	p plate c	construction))	A: Auton	omous	s water fi	ll test tank					
Thermometer	N: Not featured					A: Featur	red (0	to 100°C	, φ40)					
Tama		A: Open at 65°	C or high	ner (for alarm	n)		E:	A + C						
Temperature switch		B: Closed at 65	°C or hig	gher (for alar	rm)		F:	A + D						
(Up to 3 including	N: Not featured	C: Open at 20°	C or high	ner (for heate	er control)		G:	B + C						
fluid level switches)		D: Closed at 20	°C or hig	gher (for hea	ater control)		H:	B + D						
		Note: Differentia	al: 5 to 8°	°C for A/C, 3	to 6°C for B,	Ď								
Fluid level		A: Open at lowe			,			A + C						
switch (Up to 3 including	N: Not featured	B: Closed at lov	·		,			A + D						
temperature		C: Open at upp			,			B+C						
switches)	Ni, Ni at fa atura d	D: Closed at up	per limit	or higher (fo	or alarm)		H:	B + D						
Oil pan	N: Not featured	A: Featured A: For AC 200		D. Ec	or AC 220 V		<u>C</u> .	For AC 4	100.1/	D. I	For AC 4	140.1/		
Electric heater 1 kW	N: Not featured	Note: Not possi				erature ac					OI AC 4	140 V		
Magnet contaminant separator	N: Not featured	A: Featured (In							<u></u>					
Tank drain valve	N: Not featured	A: Featured (1/2	2B globe	e valve)										
Water cooler	N: Not featured	60 L tank	A:	LT0403A-10	0 B: L	T0504A-1	0							
		100/160 L tank		LT0504A-10		T0707A-10								
Water cooler piping Temperature	N: Not featured	A: Featured	cooler a piping b machin	and between	the water of water coole water coole of directly co	ooler and r and retu	returr rn filte	n filter. W er is cove	hen not ins red by this		ntrol valv			
actuated water regulating valve	N: Not featured	A: Featured) L tank: OW						Manufacturer: Seisakusho, I Valve starts o	nc.			
Return filter		A: Featured (O	pen whe	n clogged)										
clog detection switch	N: Not featured	B: Featured (CI	osed wh	en clogged)										
Unit orientation	N: Standard	A: Reverse ass	embly											
Pressure	N: Not featured	A: Open at 2 M	Pa or lov	wer		-	acture	er: ACT E	lectric Indu	istry Co., Ltd.	CE16			
switch		B: Closed at 2 I	B: Closed at 2 MPa or lower Electronic switch Manufacturer: efector PK6731 (PNP), PK8731 (NPN)											
Terminal box	N: Not featured	A: Featured	No term When s This op	ninal block is electing the ption covers	s supplied w wiring optic the wiring	ith the terr n, select " from elec	minal 'N: No ctrical	box. One It feature control	DIN rail ro d" for this o devices to	w is attached. ption. the terminal	box. Th	$(W \times H \times D).$		
Electric wiring	N: Not featured	A: Featured	termina No wirin by the ι	I block with ng port is pr user.	M3 terminal ovided for w	s (with 2 s riring by th	pare p ne use	oins) usin er becaus	g VCT cab se the port i	les. is a part of the	e work to	re made on the		
Specified color	N: Standard	A: Special color	purchas JMPA c	sed are mas code [ked.] or Munse	ell cod	le [·	re gauge, hos] de Y59-60H (parts code 10BG6/4)		

Other requests will be handled as design-to-order cases.

Control circuit selection table

× Se	eries order		6th series	5th	series	4th se	ries	3rd	series	2nd se	eries	1st	series
Size			02		02 03	02		1	02 03	02 03			02 03
Sole	noid valve sp	ool code							valve table.				
Circu	uit code				Sele	ect one from the	e circuit c	odes give	n in the table	e below.			
Sole	noid valve vo	ltage			200/200/	/110 V, 50/60/60 /220 V, 50/60/6 DC 24 V				Note volta	ground te r (CE comp that only age codes pliant.	oliant mo the mode	dels) els with
Name	Meter-in throttle	Meter-out throttle	Meter-out I position holding	Meter-in port P pressure reducing	Meter-ou P press reduci	sure B pressi	ure Bp	er-out port pressure educing	Meter- in back pressure	Meter-out po holding po pressure red	rt B holdi	out position ng port P re reducing	Meter-in PC flow control
Circuit code	01	02	03	04	05	06		07	08	09		10	11
Standard control circuit													
Notes on circuit operation	 Applicable only to positive load Not applicable to negative load or inertial load. Not applicable to very low speed (no slower than 1 m/min) Leakage at directional control valve at the center position. 	both positive and negative e load • Care required about boost pressure with		applicable to negative	ressure series. the pressure in the series. achieve variable thrust, such as for		var thru loa . adj roll e sep forc . Not eter- ol wh ative pos nee	eparating when the position		- needs to be ne held in circuit he e 07. 05		d when position ds to be l in circuit	Used when precise speed control is required in circuit 01.
Name		Meter- in port B pressure reducing PC r flow control	out port B B p pressure reducing reducing PC retention	ressure B pr ng position reducin on PC flow retention	ressure ng position	Meter-out 2-spe		-out 2-spe sition hold	2-pre	er-in essure peed	Meter- 2-press 2-spe	sure	Blocking
Circuit code	12	13			16	17		18		19	20		00
Standard control circuit													
Notes on circuit operation	 Used when precise speed control is required in circuit 02. Brake valves, etc. to be considered with inertial load. Care required about boost pressure with negative load. 	Used when precise speed control is required in circuit 06.	precise the speed nee control is be h	position the eds to need held in be h	position ds to	Used when high low-speed contr is required. Care required about boost pressure with negative inertial load.	ol posit be he 17.	I when the ion needs t eld in circui	t • Used w low-pre control • High-/lo	load. nen high-/ ssure s required.	Used whe low-press control is r High-/low- control po	ure equired. speed	When the circuit is not used