KOWA SINGLE LINE LUBRICATING SYSTEMS

KJ,KM,KL TYPE MEASURING VALVES

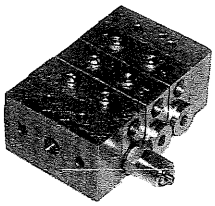
INSTRUCTION MANUAL

KWK KOWA CORPORATION

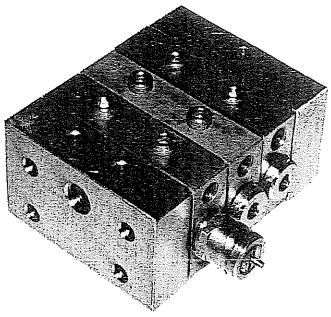
2007.11.19

分配弁
MEASURING VALVES

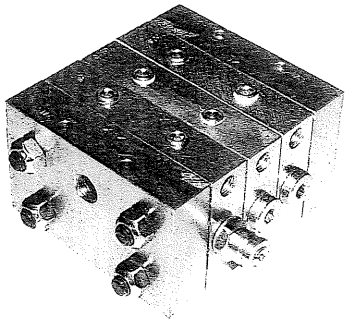
KJ, KM, KL形
KJ, KM, KL TYPE



KJ



KM

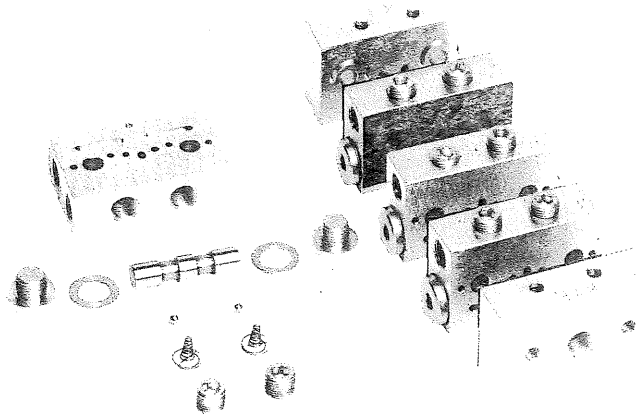


KL

概要 General Description

ＫＪ、ＫＭ、ＫＬ形分配弁は、剛性の高い鋼で製作されていて、１口または２口の分配機能を持ったＭブロックを、Ｉブロック（潤滑剤が入ってくるブロック）とＥブロック（最終ブロック）でサンドイッチ状にはさむ構造を基本としています。吐出口を持つＭブロックは、最小３個から最大８個まで任意に組み合わすことができ、このブロックの数の選択で吐出量、吐出口数を設定します。これら各ブロックの組み合わせには、シール性能にすぐれたパッキンを使用しています。
各ブロックの吐出口には逆止弁が設けられていて、逆流防止、確実定量吐出が保証されています。

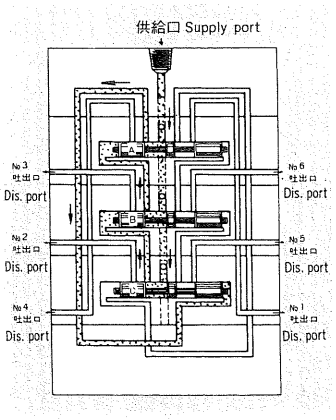
KJ, KM, KL type measuring valves are manufactured of highly carbon steel. The basic construction of these valves is such that the M block having a measuring function of one or two ports is sandwiched by an I block (the block into which lubricant makes entry) and an E block (final block), The M blocks having the discharge port can be combined as desired from minimum 3 pieces up to maximum 8 pieces. The discharge capacity and the number of discharge ports are set by selecting the number of the M blocks. The original gaskets are used in the combinations of these blocks to provide superior sealing performance. A check valve is provided in the discharge port of each block to prevent back flow and to assure the rated discharge.



仕様 Specification

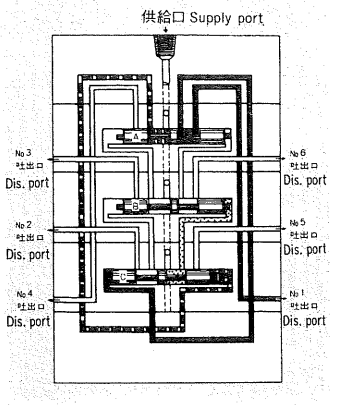
形　式 Model	ピストン種類 Kind of piston	吐出量(cm³/Stroke) Discharge capacity	1ブロック当り吐出口数 Number of discharge ports per block	最高圧力 Max. pressure
KJ	5T	0.082	2	13.7MPa (6.9MPa for oil)
	5S	0.164	1	
	10T	0.164	2	
	10S	0.328	1	
	15T	0.246	2	
	15S	0.492	1	
KM	10T	0.164	2	20.6MPa (9.8MPa for oil)
	10S	0.328	1	
	15T	0.246	2	
	15S	0.492	1	
	20T	0.328	2	
	20S	0.656	1	
	25T	0.410	2	
	25S	0.820	1	
	30T	0.492	2	
	30S	0.984	1	
	35T	0.574	2	
	35S	1.148	1	
KL	25T	0.410	2	20.6MPa (9.8MPa for oil)
	25S	0.820	1	
	50T	0.820	2	
	50S	1.640	1	
	75T	1.230	2	
	75S	2.460	1	
	100T	1.640	2	
	100S	3.280	1	
	125T	2.050	2	
	125S	4.100	1	
	150T	2.460	2	
	150S	4.920	1	

作動説明 Principle of Operation



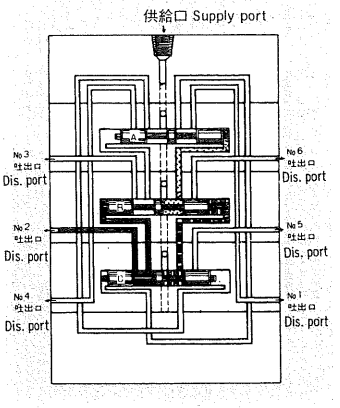
1 ポンプより加圧された潤滑剤は、供給口より流入し矢印方向に流れ、ピストンA、B、Cを押します。この時ピストンA、Bは右側に押し付けられて動きません。ピストンCは左側に移動します。

1 The lubricant pressurized by a pump flows into the valve through the supply port and flows to the arrow direction, pushing pistons A, B, C. The pistons A, B are pressed to the right and are prevented from moving. The piston C moves to the left.



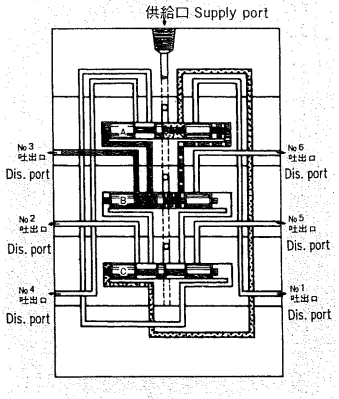
2 流入した潤滑剤によりピストンCが左に動くと、左側の潤滑剤は押されて吐出口No.1より外部に吐出されます。ピストンCが左端に突き当たると、ピストンBの右側に油が流れだします。

2 When the piston C is pushed to the left by the inflow lubricant, the lubricant on the left side is forced to be discharged through the discharge port No. 1 to the outside. When the piston C abuts on the left end, the oil begins to flow to the right side of the piston B.



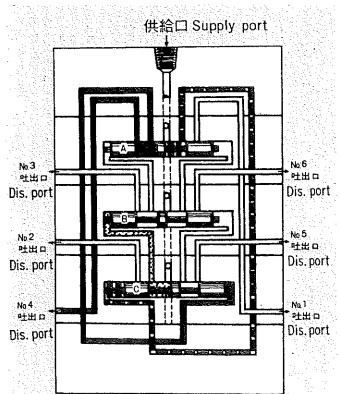
3 流入した潤滑剤によりピストンBが左に動くと、左側の潤滑剤は押されて吐出口No.2より外部に吐出されます。ピストンBが左端に突き当たると、ピストンAの右側に油が流れだします。

3 When the piston B is pushed to the left by the inflow lubricant, the lubricant on the left side is forced to be discharged through the discharge port No. 2 to the outside. When the piston B abuts on the left end, the oil begins to flow to the right side of the piston A.



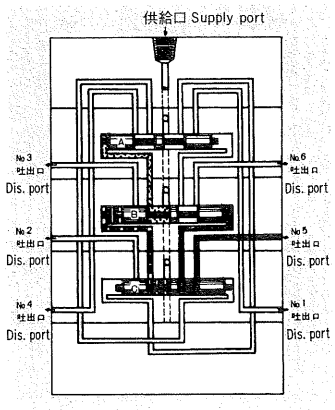
4 流入した潤滑剤によりピストンAが左に動くと、左側の潤滑剤は押されて吐出口No.3より外部に吐出されます。ピストンAが左端に突き当たると、ピストンCの左側に油が流れだします。

4 When the piston A is pushed to the left by the inflow lubricant, the lubricant on the left side is forced to be discharged through the discharge port No. 3 to the outside. When the piston A abuts on the left end, the oil begins to flow to the left side of the piston C.



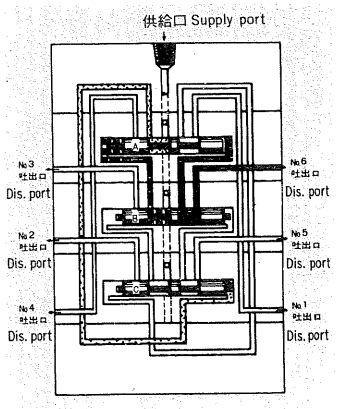
5 流入した潤滑剤によりピストンCが右に動くと、右側の潤滑剤は押されて吐出口No.4より外部に吐出されます。ピストンCが右端に突き当たると、ピストンBの左側に油が流れだします。

5 When the piston C is pushed to the right by the inflow lubricant, the lubricant on the right side is forced to be discharged through the discharge port No. 4 to the outside. When the piston C abuts on the right end, the oil begins to flow to the left side of the piston B.



6 流入した潤滑剤によりピストンBが右に動くと、右側の潤滑剤は押されて吐出口No.5より外部に吐出されます。ピストンBが右端に突き当たると、ピストンAの左側に油が流れだします。

6 When the piston B is pushed to the right by the inflow lubricant, the lubricant on the right side is forced to be discharged through the discharge port No. 5 to the outside. When the piston B abuts on the right end, the oil begins to flow the left side of the piston A.



7 流入した潤滑剤によりピストンAが右に動くと、右側の潤滑剤は押されて吐出口No.6より外部に吐出されます。ピストンAが右端に空き当たると、最初の状態[1]になり、以上の動きを繰返します。

7 When the piston A is pushed to the right by the inflow lubricant, the lubricant on the right side is forced to be discharged through the discharge port No. 6 to the outside. When the piston A abuts on the right end, the initial state is restored and the abovementioned operations are repeated.

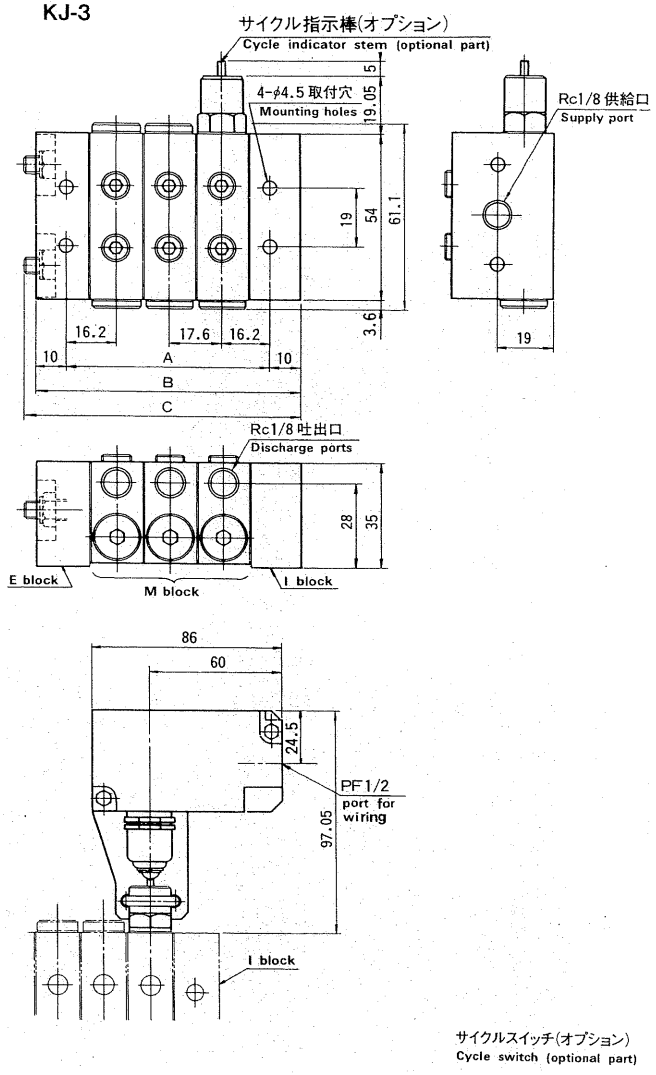
■吐出量について Remarks on Discharge Capacity

作動説明でおわかりのようにピストンが左右に動くことによって潤滑剤が次々と吐出されてゆくわけで、各ポートのピストンサイズにより吐出される潤滑剤の量が変わります。このサイズは、Mブロックにそれぞれ刻印によって型式を表示します。

As can be seen from the diagrams showing the principle of operation, the lubricant is discharged successively by the right and left movement of the pistons. The amount of the lubricant to be discharged varies with the sizes of the ports. Piston sizes are indicated by the type numbers inscribed on the respective M blocks.

寸法図 Dimensions

KJ-3

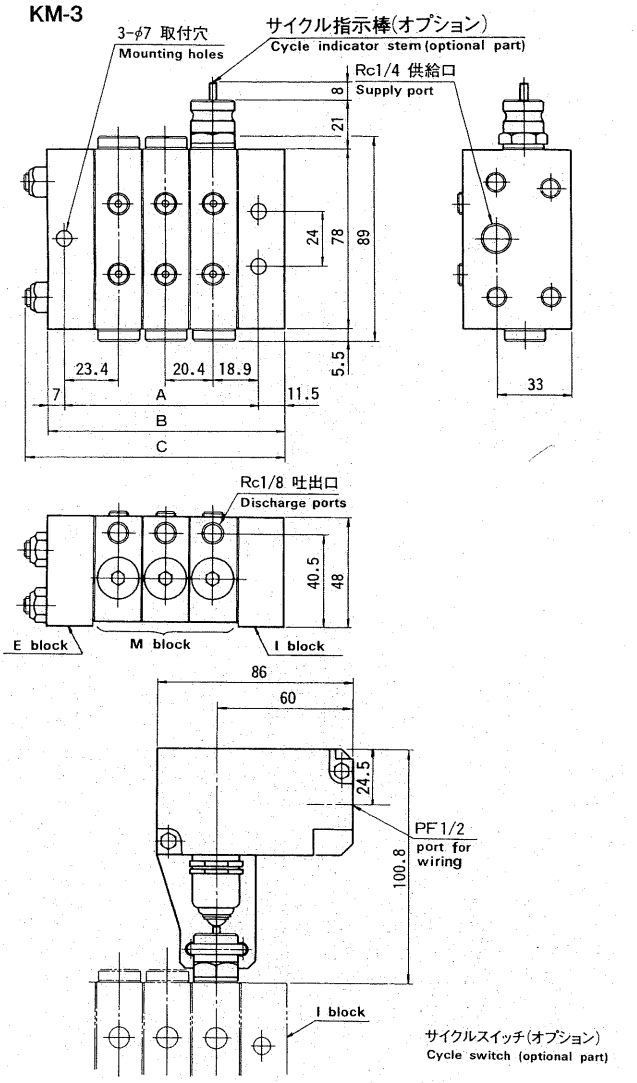


注．サイクル指示棒及びサイクルスイッチはオプションです。
The cycle indicator stem and cycle switch are optional parts.

形式 Model	ブロック数 Number of blocks I	M	E	A	B	C	供給口数 Size of supply port	吐出口径 Size of discharge port	最大吐出口数 Max. number of discharge port	重量 kg Weight
KJ-3	1	3	1	67.6	87.6	91.1	Rc1/8	Rc1/8	6	1.3
KJ-4	1	4	1	85.2	105.2	108.7			8	1.5
KJ-5	1	5	1	102.8	122.8	126.3			10	1.8
KJ-6	1	6	1	120.4	140.4	143.9			12	2.0
KJ-7	1	7	1	138	158	161.5			14	2.3
KJ-8	1	8	1	155.6	175.6	179.1			16	2.5

〔付属品〕M4×50L取付ボルト(ナット付) 4組
KJ Accessories: M4×50L mounting bolts with nuts 4 sets

KM-3

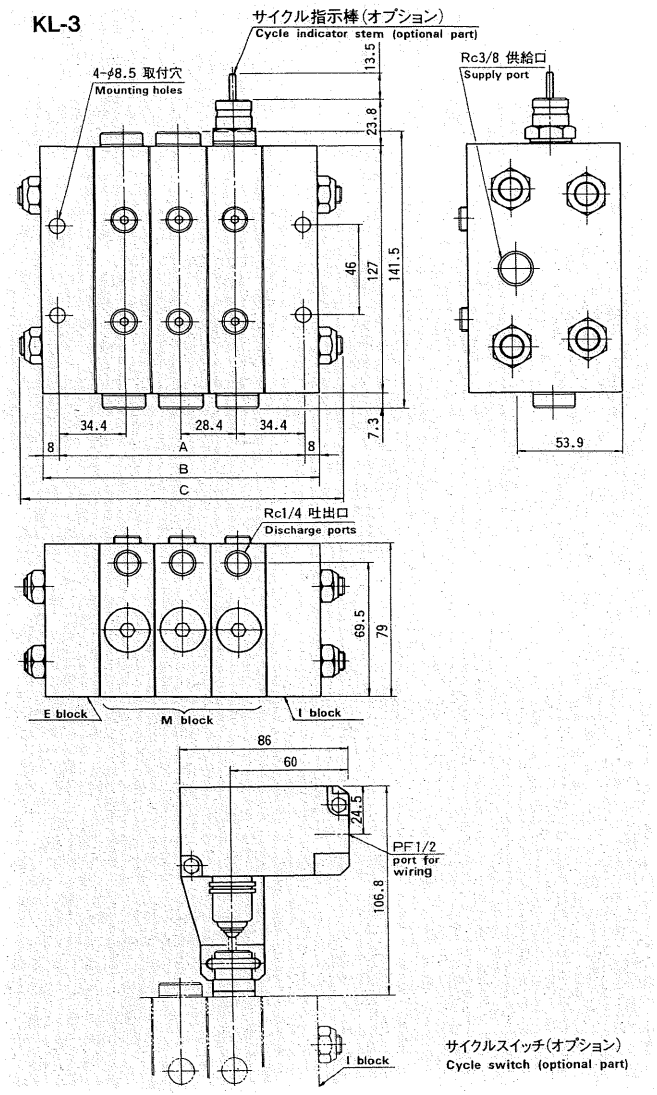


注．サイクル指示棒及びサイクルスイッチはオプションです。
The cycle indicator stem and cycle switch are optional parts.

形式 Model	ブロック数 Number of blocks I	M	E	A	B	C	供給口径 Size of supply port	吐出口径 Size of discharge port	最大吐出口数 Max. number of discharge port	重量 kg Weight
KM-3	1	3	1	83.1	101.6	112	Rc1/4	Rc1/8	6	2.9
KM-4	1	4	1	103.5	122	133			8	3.5
KM-5	1	5	1	123.9	142.4	153			10	4.0
KM-6	1	6	1	144.3	162.8	173			12	4.6
KM-7	1	7	1	164.7	183.2	194			14	5.2
KM-8	1	8	1	185.1	203.6	214			16	5.7

〔付属品〕M6×65L取付ボルト(ナット付) 3組
KM Accessories: M6×65L mounting bolts with nuts 3 sets

寸法図 Dimensions



注. サイクル指示棒及びサイクルスイッチはオプションです。
The cycle indicator stem and cycle switch are optional parts.

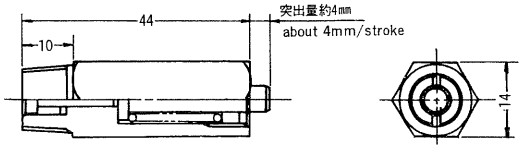
形式 Model	ブロック数 Number of blocks I	M	E	A	B	C	供給口径 Size of supply port	吐出口径 Size of discharge port	最大吐出口数 Max. number of discharge port	重量 kg Weight
KL-3	1	3	1	125.6	141.6	168	Rc3/8	Rc1/4	6	11.1
KL-4	1	4	1	154	170	196			8	13.3
KL-5	1	5	1	182.4	198.4	225			10	15.5
KL-6	1	6	1	210.8	226.8	253			12	17.7
KL-7	1	7	1	239.2	255.2	282			14	19.9
KL-8	1	8	1	267.6	283.6	310			16	22.1

〔付属品〕M8×100L取付ボルト(ナット付) 4組
KL Accessories: M8×100L mounting bolts with nuts 4 sets

ブロックインジケーター Block Indicator

分配弁の各予備吐出口にねじ込み、吐出ラインに詰りが生じた場合に、詰りによって吐出部の圧力が異常に上昇し、規定圧力以上に達するとインジケーターピンが外部に飛びだします。このため、詰りの発生した系統のチェックをすることができ、より確実な潤滑管理が行えます。

The block indicator is screwed into each spare discharge port of the measuring valve. When the discharge line is clogged or choked and the pressure in the discharge part rises abnormally, the indicator pin pops to the outside. This enables to locate the point in the system where the clogging occured. This adds reliability to the lubrication control.



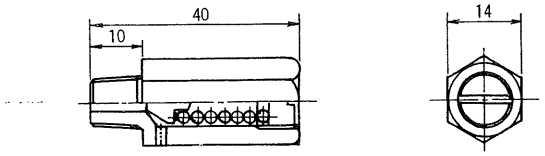
形式 Model	ネジ径 Screw size	設定圧力 MPa Pressure	スプリングの色 Spring color	形式 Model	ネジ径 Screw size	設定圧力 MPa Pressure	スプリングの色 Spring color
B 1/8-3	R 1/8	2.9	白 White	B 1/4-3	R 1/4	2.9	白 White
B 1/8-5		4.9	赤 Red	B 1/4-5		4.9	赤 Red
B 1/8-7		6.9	橙 Orange	B 1/4-7		6.9	橙 Orange
B 1/8-9		8.8	茶 Brown	B 1/4-9		8.8	茶 Brown
B 1/8-15		14.7	黒 Black	B 1/4-15		14.7	黒 Black
B 1/8-18		17.6	無 No color	B 1/4-18		17.6	無 No color

※スイッチを取付けることも可能です。 ※It is also possible to attach a switch.

オートレリーフ Auto Relief

各分配弁の予備吐出口にねじ込んで使用するもので、吐出ラインに詰りが生じた場合、異常に圧力が上昇しますので弁を開いて分配弁のストローク量の潤滑剤を外へ流し、詰り個所を表示します。
分配弁を止めずに詰り個所を知ることができ、各種安全対策として用います。

The auto relief is used by screwing it into the spare discharge port of each measuring valve. When the discharge line is clogged or choked, the pressure rises abnormally and this forces the valve to open so that the lubricant stroked by the measuring valve is discharged to the outside and the clogged point is indicated. The clogged point can thus be identified without stopping the measuring valve. The auto relief is used for various kinds of safety measures.



形式 Model	ネジ径 thread size	設定圧力 MPa Pressure	スプリングの色 color	形式 Model	ネジ径 thread size	設定圧力 MPa Pressure	スプリングの色 Spring Color
R 1/8-5	R 1/8	4.9	緑 Green	R 1/4-5	R 1/4	4.9	緑 Green
R 1/8-7		6.9	青 Blue	R 1/4-7		6.9	青 Blue
R 1/8-9		8.8	黄 Yellow	R 1/4-9		8.8	黄 Yellow
R 1/8-15		14.7	銀 Silver	R 1/4-15		14.7	銀 Silver
R 1/8-18		17.6	金 Gold	R 1/4-18		17.6	金 Gold

SINGLE LINE MEASURING VALVE DISASSEMBLY, REASSEMBLY

When the malfunction of measuring valve occurs owing to the foreign matter, remove the foreign matter by the disassembly and cleaing of measuring valve.
In case of the disassembly and reassembly, take care of the following:

(1) Basic matter

1) The measuring valve is precisely manufactured and therefore care must be taken to prevent the piston and piston hole from causing damage.
2) Prior to disassembly, make the memorandum of the positions of arrangement, piping connection port, plug with the actual measuring valve watched. For reassembly, care must be paid not to mistake.
3) Select a clean working place. In case of the incorporation, care must be taken to prevent the foreign matter from entering.
4) The torque wrench service is required.
5) The packing which once used is not capable of employing. Hence prepare new packing. (Place an order with us or our agent.)
6) Washing oil (light oil) service is required.

(2) Measuning valve operation check.

1) Remove the hexagon socket washer head plug.
2) Depress the piston using a small round bar, and ensure that it moves smoothly, and then find the inoperative piston.
3) If there is inoperative piston, depress it from the opposite side, and it may take out easily.
4) Since the fitting of piston and piston hole is made precisely, care must be exercised not to cause the burr in the piston and the hole.
5) Since the piston must be incorporated in the original body without fall, provide the marking so that it can known thereby whether it is the piston of any piston of any body.
6) When the piston is sticking due to foregin substance into the mesuring valve, be sure to exchange the measuring valve with new one.

(3) Disassembly, Reassemdly of Measuring Valve Boby.

Each block of measuring valve is connected by tie bolts (KJ-type; 2 pcs ,KM-type; KL-type; 4 pcs). If these blocks are loosened, each block separates. The block is sometimes adhered by the packing, and then strike by the plastic hammer to separate.

Reasesembly:

1) Incorporate the body in the tie bolts. Then, perform as per the first incorporation so as to mistake the order.
2) New packing is employed for packing.
3) Clamping torque of tie bolt.
   Careless tightening of tie bolt results in inoperativeness. Surely tighten diagonally by the torgue wrench, and gradually tighten up to the clamping torque.

KL-type measuring valve	600 kgcm
KM-type measuring valve	300 kgcm
KJ-type measuring valve	160 kgcm

(4) Inspection

Upon the completion of all operation, connect to the grease gun and actually feed the grease, and then make sure that the measuring valve is securely actuated.
If the actuation is made within 15kg/cm², it is normal.