



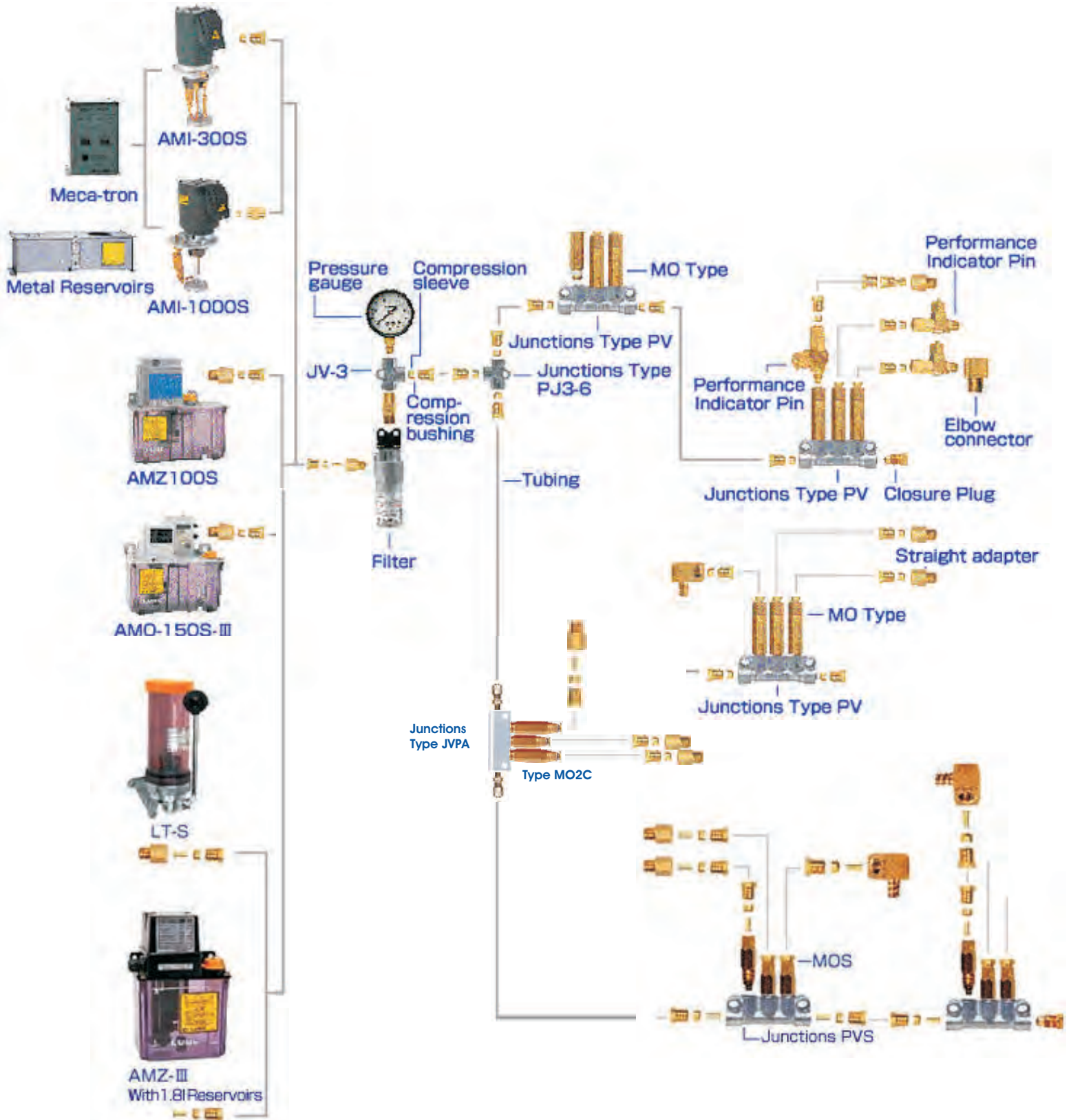
Subsidiary of Lube Corporation

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Sample Layout



Automatic intermittent gear pump AMZ-100S

Interval time set with dip switches.



Specifications	
Discharge volume	110cc/min(50Hz), 120cc/min(60Hz)
Discharge pressure	1.5Mpa(15kgf/cm ²) 217.5psi
Power	AC100V/1φ, AC200V/1φ(50Hz)
Rated current	AC100V/1.8A, AC200V/1.0A(50Hz), AC100V/1.5A, AC200V/0.8A(60Hz)
Motor	18W(50Hz), 17W(60Hz), Skelton motor
Operation rate	Max. Discharge time :1min Min. Interval time :3min

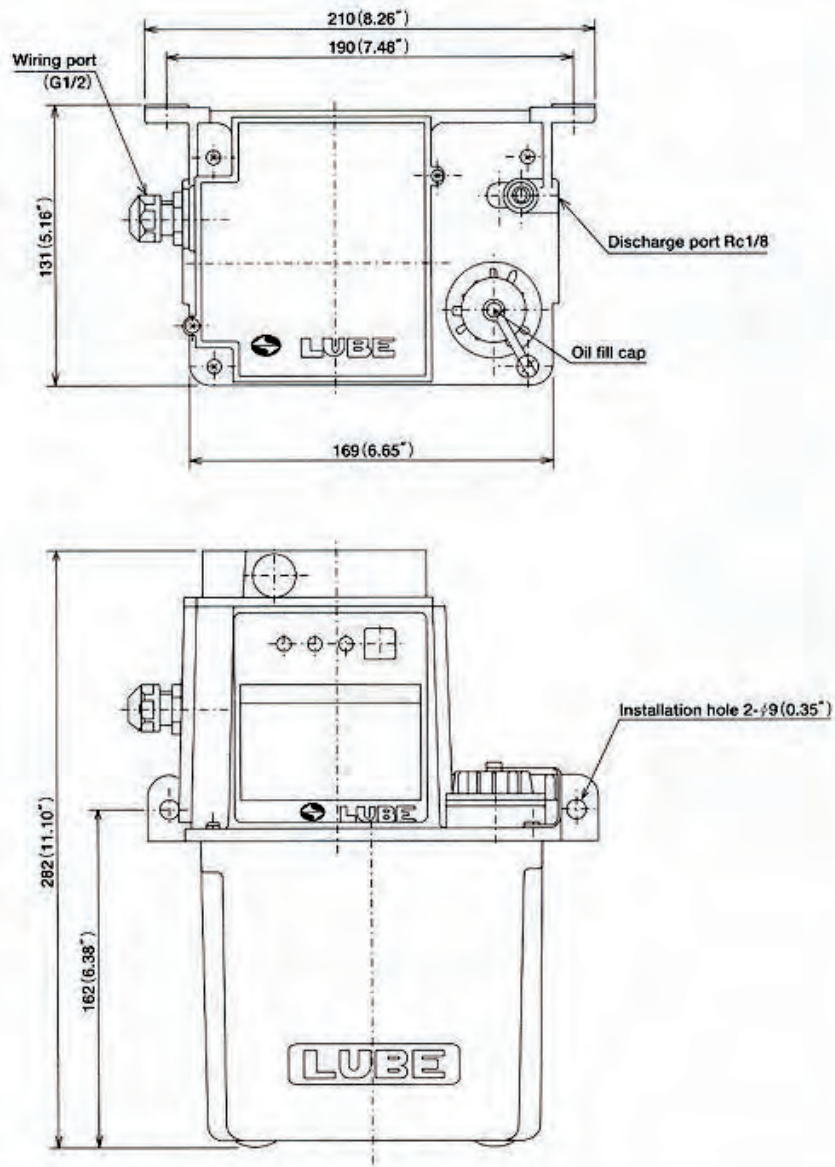
With controller	
Discharge time	With initial lubricating function 30 seconds (Fixed) or maximum 75 seconds in conjunction with pressure switch.
Interval	3~570min
Emergency detection	Pressure, Oil level Pressure switch Operating pressure: 1.3Mpa(13kgf/cm ²)188.5psi reset pressure: 0.9Mpa(9kgf/cm ²)130.5psi
Emergency output contact type	A contact (N.O)
Emergency output contact capacity	0.5A/AC100V, 0.2A/AC200V

Without controller	
Emergency output contact type	Oil level switch A contact (ON at low level) Pressure switch A contact (Pressure up ON)
Emergency output contact capacity	Oil level switch: 0.5A, AC~DC250V/2A Pressure switch: AC~DC250V/2A0
Weight	1.8ℓ: 3.3kg/7.3lbs, 3ℓ: 4kg/8.8lbs
Reservoir capacity	1.8ℓ, 3ℓ: Resin 3ℓ, 4ℓ, 8ℓ: Metal

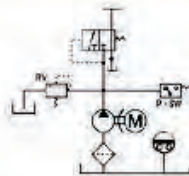
Part Number

Part Number	Pump model	Motor		Controller		Pressure	
		100V	200V	With	Without	With	Without
202669	AMZ100S-1S-18LP-C	○		○		○	
202670	AMZ100S-1S-18LP-C		○	○		○	
202678	AMZ100S-1S-18LP	○			○		○
202679	AMZ100S-1S-18LP		○		○		○
202671	AMZ100S-1S-18LP-P	○			○	○	
202672	AMZ100S-1S-18LP-P		○		○	○	

Dimensional drawing

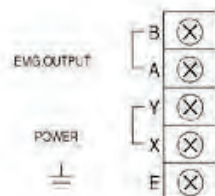


Hydraulic circuit drawing

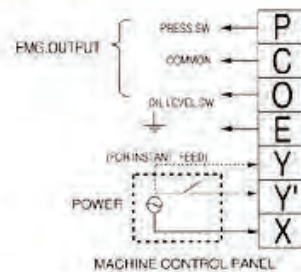


Wiring diagram

● With controller



● Without controller



Automatic intermittent gear pump AMZ-100S [CE Approved type]

Meets European Safety Standard



Specifications

Discharge volume	110cc/min(50Hz), 120cc/min(60Hz)
Discharge pressure	1.5Mpa(15kgf/cm ²) 217.5psi
Power	AC100V/1φ, AC200V/1φ(50Hz)
Rated current	AC100V/1.8A, AC200V/1.0A(50Hz) AC100V/1.5A, AC200V/0.8A(60Hz)
Motor	18W(50Hz), 17W(60Hz), Shading motor
Operation rate	Max. Discharge time :1min Min. Interval time : 3min
Working viscosity range	68~1000cSt
Oil level switch	0.5A, AC~CDC200V/30W Choose whichever smaller A contact(ON a low level)
Pressure switch	Contact type: A contact(N.O) AC~DC250V/2A (Pressure up ON)
Reservoir capacity	1.8ℓ
Weight	3.3kg/7.3lbs
Electrical Protection	External type fuse: 100V/2A, 200V/1.25A Protection class IP54

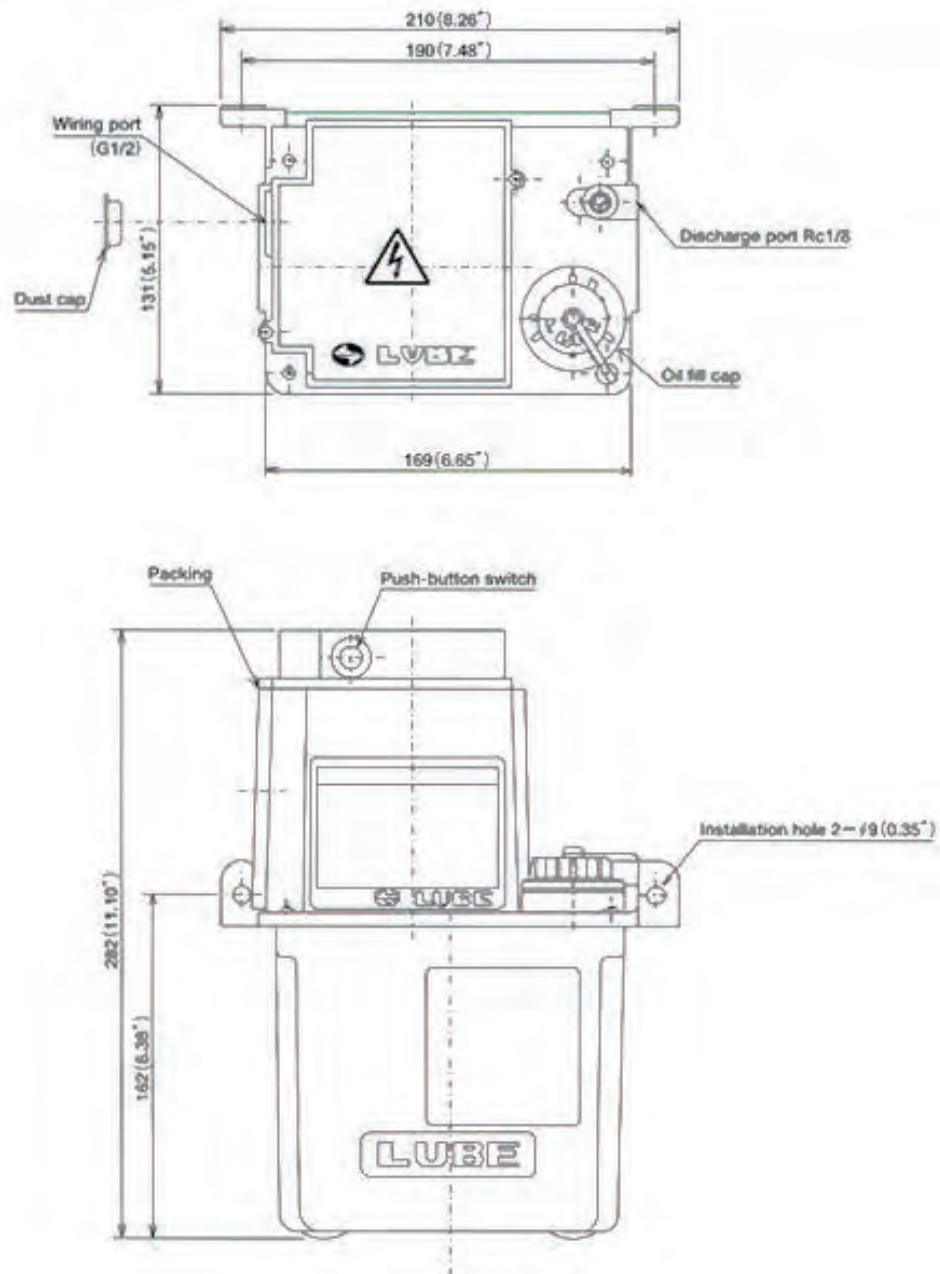
When using this pump please ask for the manual from our sales office and install following the instruction in the manual.

Part Number

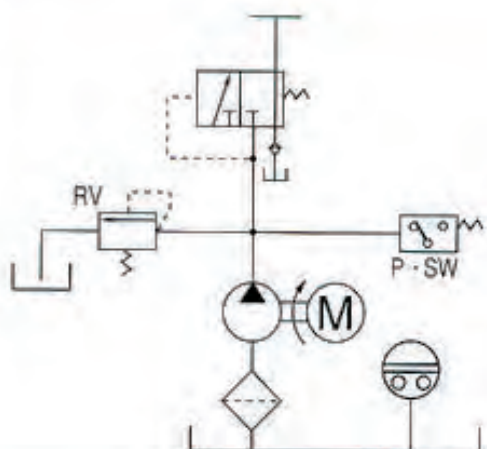
Part Number	Pump model	Motor		Controller		Pressure switch	
		100V	200V	With	Without	With	Without
202800	AMZ-100S-18LP-P	○			○	○	
202801	AMZ-100S-18LP-P		○		○	○	
202802	AMZ-100S-18LP	○			○		○
202803	AMZ-100S-18LP		○		○		○

Note: Call for other voltages.

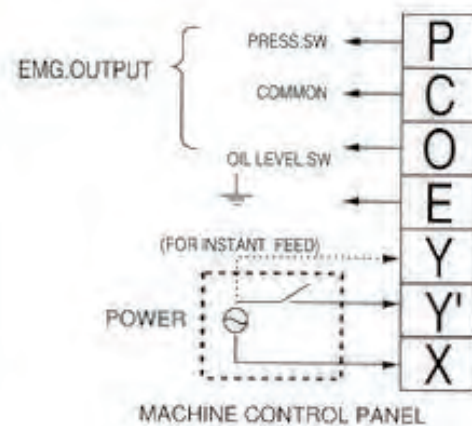
Dimensional drawing



Hydraulic circuit drawing



Wiring diagram



Automatic intermittent gear pump AMZ-III-100S

Meets European Safety Standard

Specifications

Discharge volume	90cc/min(50Hz),110cc/min(60Hz)
Discharge pressure	1.5Mpa(15kgf/cm ²) 217.5psi
Power	AC100V/1φ, AC200V/1φ(50/60Hz) AC110V/1φ, AC220V/1φ(50/60Hz)
Rated current	AC100V/1.5A, AC200V/0.8A(50Hz) AC100V/1.3A, AC200V/0.7A(60Hz)
Motor	19W(50Hz), 18W(60Hz), Shading motor
Operation rate	Max. Discharge time :1min Min. Interval time : 3min
Working viscosity range	50~1300cSt
Oil level switch	0.5A, AC~DC200V/30W A contact(ON a low level)
Pressure switch	Contact type: A contact(N.O) Operating pressure : 1.3MPa(13kgf/cm ²)188.5psi: ON Reset pressure : 0.9MPa(9kgf/cm ²)130.5psi: OFF
Reservoir capacity	1.8ℓ, 3ℓ
Weight	1.8ℓ: 2.7kg/6lbs, 3ℓ: 3.6kg/8lbs

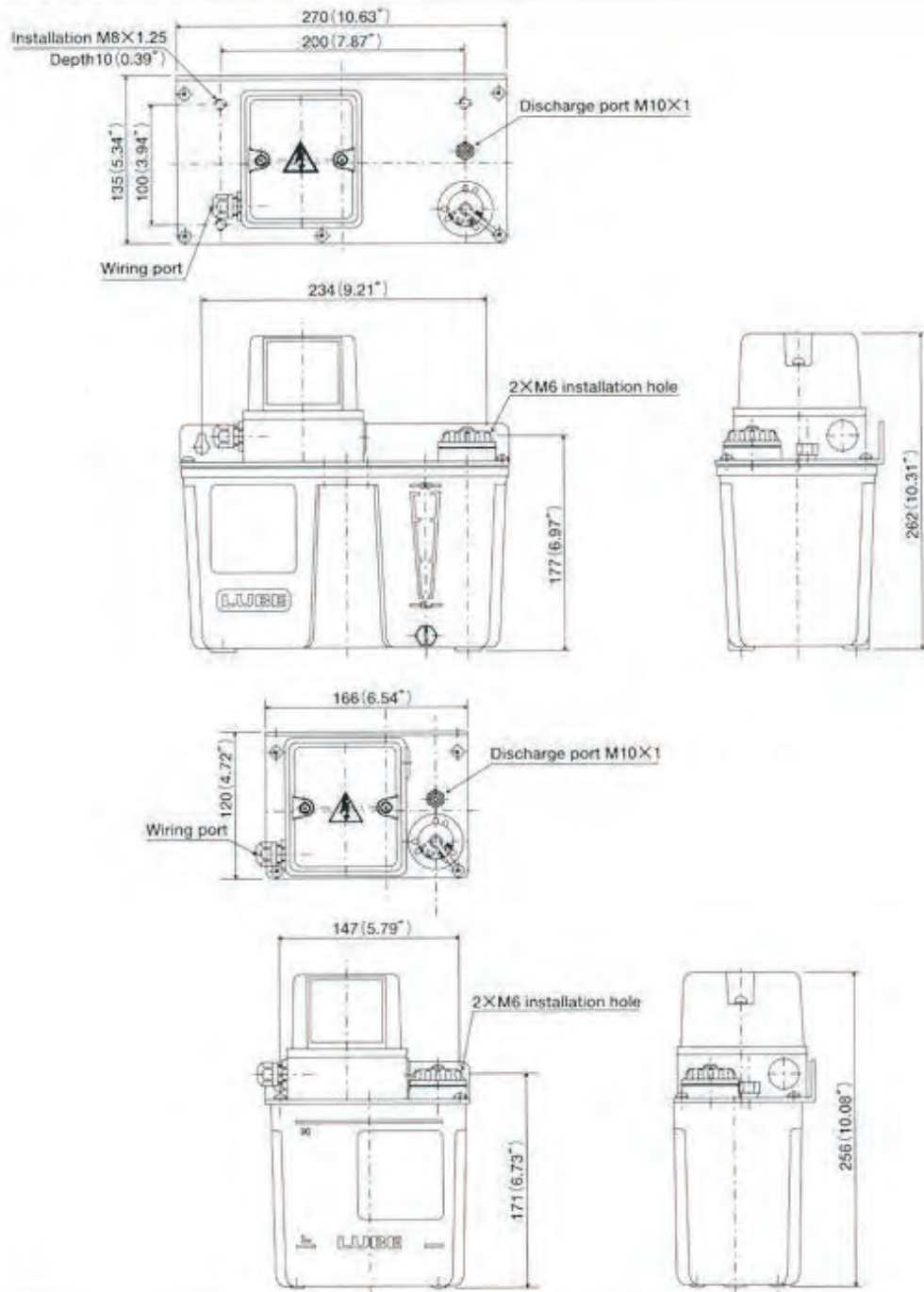


Part Number

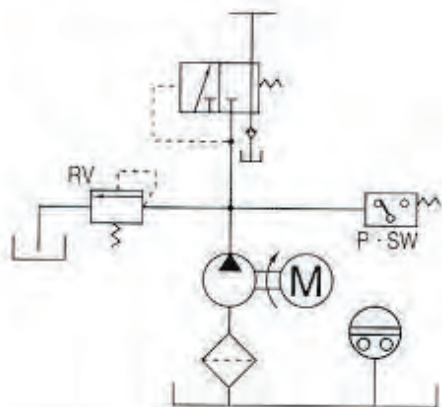
Part Number	Pump model	Motor		Controller		Pressure switch	
		100V	200V	With	Without	With	Without
285016	AMZ-100S-18LP-P		○		○	○	
285017	AMZ-100S-18LP-P	○			○	○	
285023	AMZ-100S-30LP-P		○		○	○	
285024	AMZ-100S-30LP-P	○			○	○	

Part Number	Pump model	Motor		Controller		Pressure switch	
		110V	220V	With	Without	With	Without
285036	AMZ-100S-18LP-P		○		○	○	
285037	AMZ-100S-18LP-P	○			○	○	
285038	AMZ-100S-30LP-P		○		○	○	
285039	AMZ-100S-30LP-P	○			○	○	

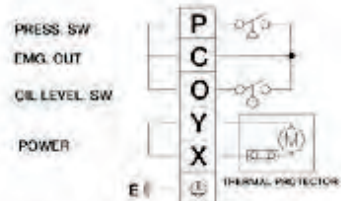
Dimensional drawing



Hydraulic circuit drawing



Wiring diagram



Automatic intermittent gear pump AMO-II-150S

Automatic interval pump for a wide range of the oil viscosities



Specifications

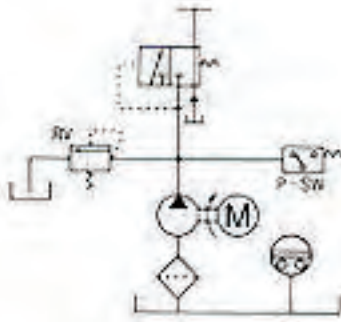
Discharge volume	150cc/min(50Hz),180cc/min(60Hz)
Discharge pressure	2.0Mpa(15kgf/cm ²) 284psi
Power	AC100V/1φ, AC200V/1φ(50/60Hz) AC110V/1φ, AC220V/1φ(50/60Hz)
Rated current	AC100V/0.83A, DC200V/0.41A(50Hz) AC100V/0.64A, AC200V/0.33A(60Hz)
Motor	20W(50/60Hz), Condenser motor
Operation rate	Max. Discharge time :1min Min. Interval time : 3min
Working viscosity range	68~1800cSt

Part Number

AMO-II-150S-T18LP (Reservoir 1.8L)

Part Number	100v	110v	200v	220v	1.8 liter	3.0 liter	With-PS	W-Out-PS
202067	○				○			○
202071	○				○		○	
202267		○			○			○
202271		○			○		○	
202068			○		○			○
202072			○		○		○	
202268				○	○			○
202272				○	○		○	
202069	○					○		○
202073	○					○	○	
202269		○				○		○
202273		○				○	○	
202070			○			○		○
202074			○			○	○	
202270				○		○		○
202274				○		○	○	

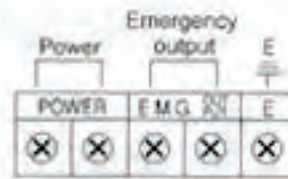
Hydraulic circuit drawing



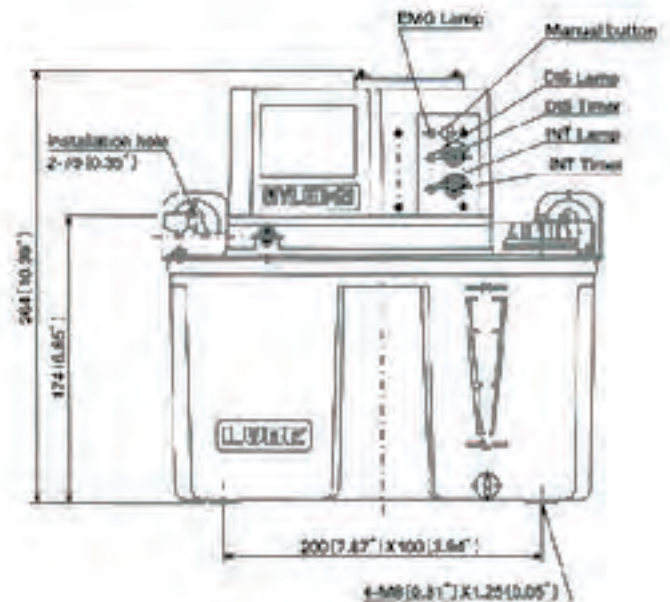
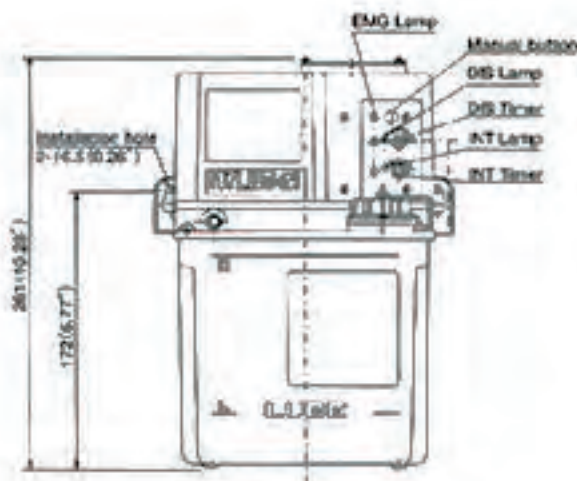
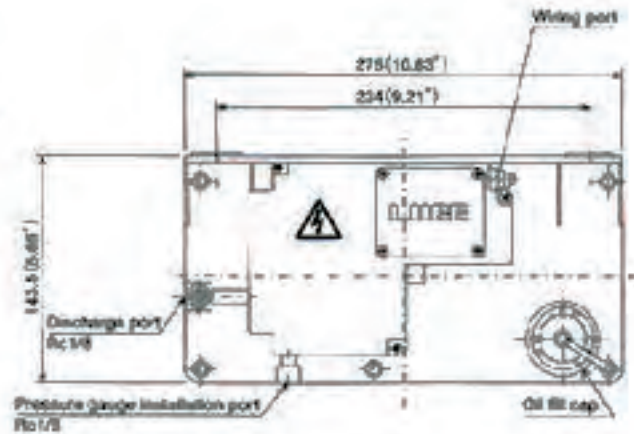
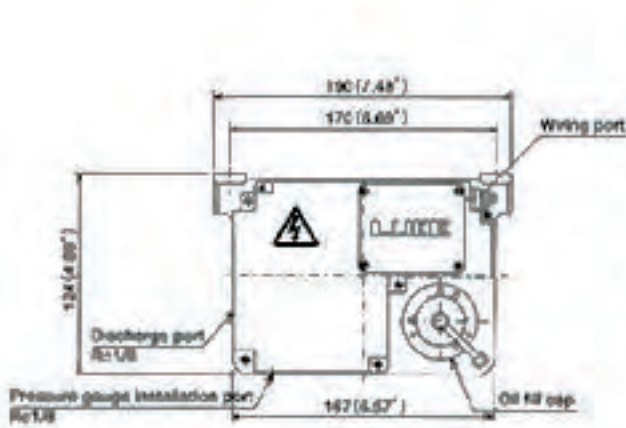
Wiring diagram

● With controller

● Without controller



Dimensional drawing



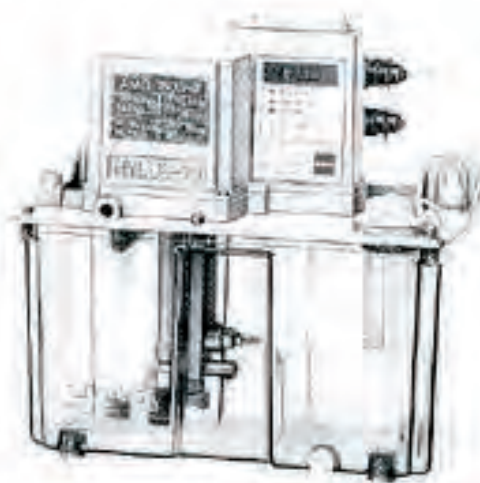
Automatic intermittent gear pump AMO-III D

Positive displacement gear pump with a microprocessor based controller.

Pump interval can be time based or count based.

Specifications	
Discharge volume	150cc/min(50Hz),180cc/min(60Hz)
Discharge pressure	2.0Mpa(20kgf/cm ²) 284psi
Power	AC100V/1φ, AC200V/1φ(50/60Hz) AC110V/1φ, AC220V/1φ(50/60Hz)
Rated current	AC100V/0.83A, DC200V/0.41A(50Hz), AC100V/0.64A, AC200V/0.33A(60Hz)
Motor	Condenser motor, output 20W
Working viscosity range	68~1800cSt

Controller	
Discharge Interval	1~99seconds. 1~9999min or 1~9999counts
Emergency detection	Pressure, Oil level Pressure switch Operating pressure : 1.3Mpa(13kgf/cm ²)184.6psi Reset pressure : 0.9Mpa(9kgf/cm ²)127.8psi
Emergency output contact type	A contact (N.O)
Emergency output contact capacity	In case of 100V: 50mA In case of 200V 1.5A
Reservoir capacity	1.8ℓ, 3ℓ
Weight	1.8ℓ: 3.2kg/7lbs, 3ℓ: 4kg/8.8lbs

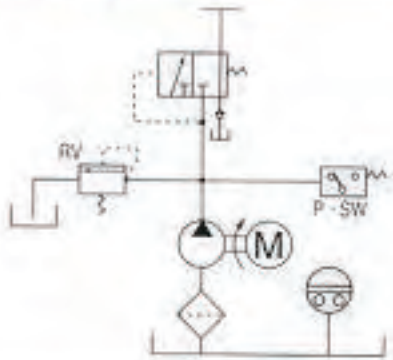


Part Number

Part Number	Voltage		Reservoir	
	AC100V	AC200V	1.8ℓ	3.0ℓ
202777	<input type="radio"/>		<input type="radio"/>	
202778		<input type="radio"/>	<input type="radio"/>	
202779	<input type="radio"/>			<input type="radio"/>
202780				<input type="radio"/>

Part Number	Voltage		Reservoir		Color	
	AC110V	AC220V	1.8ℓ	3.0ℓ	Green	Machine Tool Gray
202507	<input type="radio"/>		<input type="radio"/>			
202508		<input type="radio"/>	<input type="radio"/>			
202370	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	
202371		<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	
202372	<input type="radio"/>			<input type="radio"/>		<input type="radio"/>
202373		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>

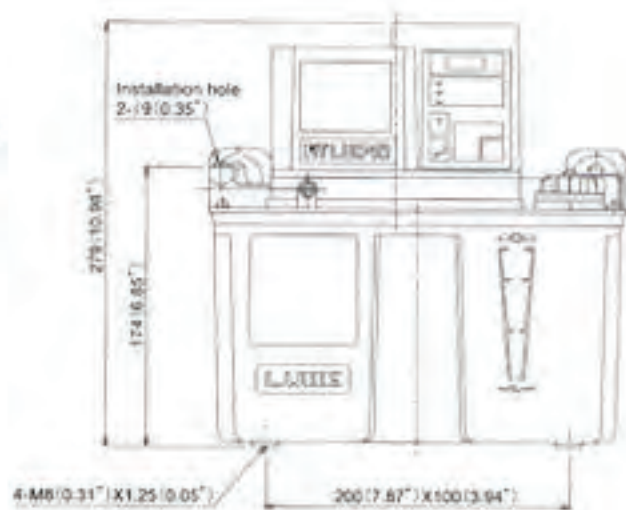
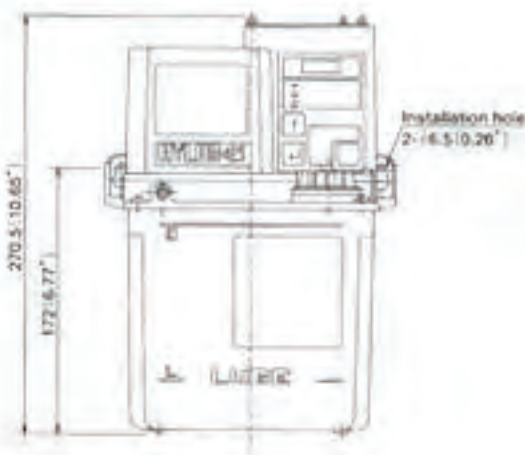
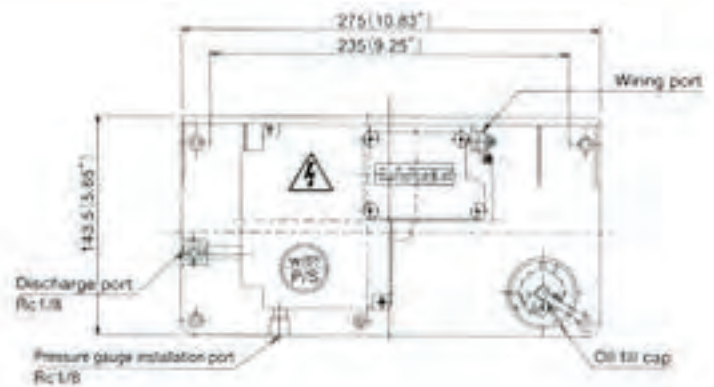
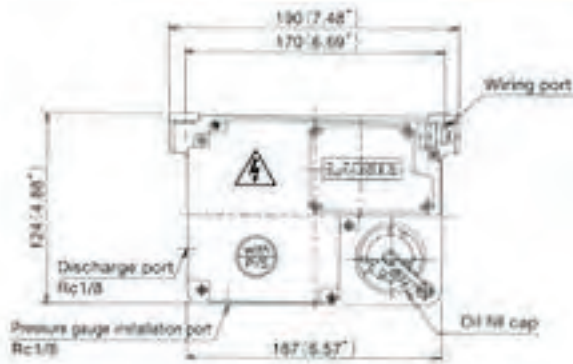
Hydraulic circuit drawing



Wiring diagram



Dimensional drawing



⊕ Electric intermittent gear pump AMI-300S

Must be used with an external timer. Available with two discharge volumes.



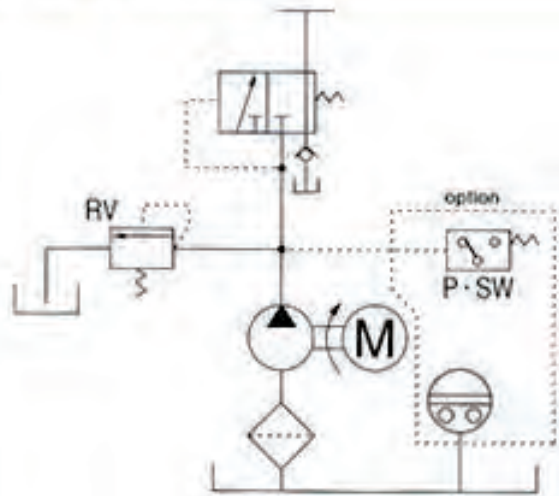
Specifications

Discharge volume	300cc/min(50Hz), 330cc/min(60Hz)
Discharge pressure	2.5MPa(25kgf/cm ²) 355psi
Power	AC100V/1φ, AC200V/3φ(50/60Hz)
Rated current	AC100V/1.4A, AC200V/0.35A
Motor	50W Induction motor
Operation rate	Max. Discharge time : 3min Min. Interval time : 3min
Working viscosity range	65~1300cSt
Oil level switch	Optional: Installed on a reservoir
Pressure switch	External option
Reservoir capacity	2ℓ, 3ℓ, 4ℓ and 8ℓ
Weight	4.4kg/9.7lbs
Others	Attached condenser 20μF for 100V(510402) With Pressure relief mechanism. Motor rotary direction: Counter-clockwise

Part Number

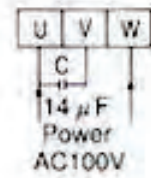
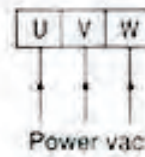
Part Number	Motor	
	100V	200V
202033	○	
202034		○

Hydraulic circuit drawing

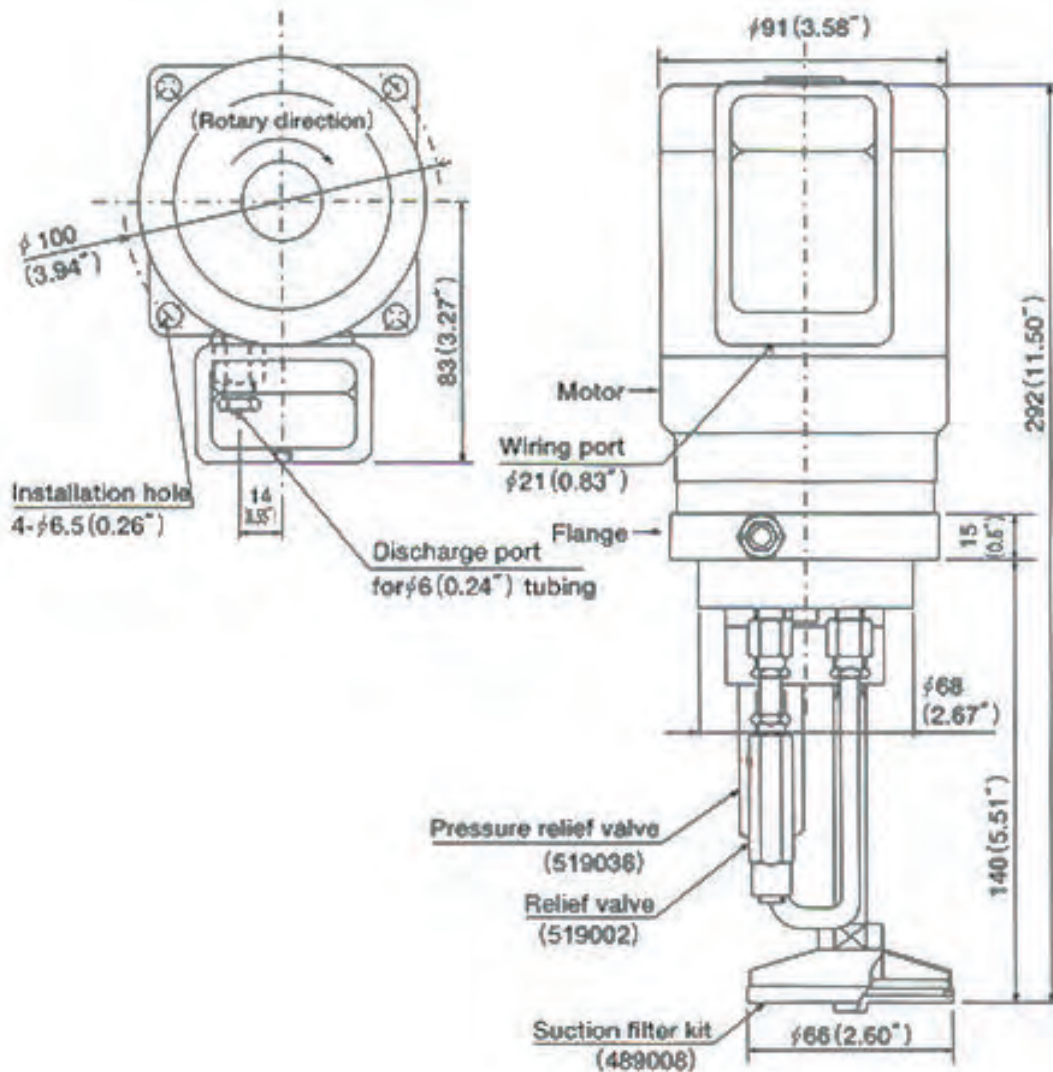


Wiring diagram

Three-phase connection Single-phase connection



Dimensional drawing



⚙️ Electric intermittent gear pump AMI-1000S

Must be used with an external timer. Available with two discharge volumes.



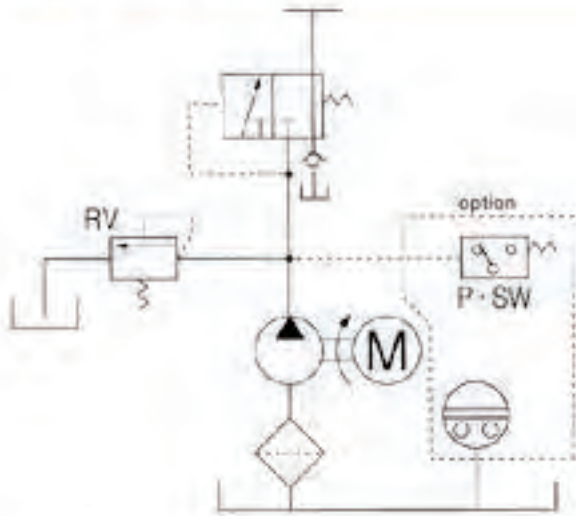
Specifications

Discharge volume	1000cc/min(50Hz), 1100cc/min(60Hz)
Discharge pressure	2.5MPa(25kgf/cm ²) 355psi
Power	AC100V/1φ, AC200V/3φ(50/60Hz)
Rated current	AC100V/2A, AC200V/0.8A
Motor	75W Induction motor
Operation rate	Max. Discharge time :3min Min. Interval time : 3min
Working viscosity range	65~1300cSt
Oil level switch	Optional: Installed on a reservoir
Pressure switch	External option
Reservoir capacity	2ℓ, 3ℓ, 4ℓ and 8ℓ
Weight	7.1kg/15.6lbs
Others	Attached condenser 20μF for 100V(510298) With Pressure relief mechanism Motor rotary direction: Counter-clockwise

Part Number

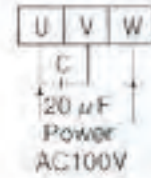
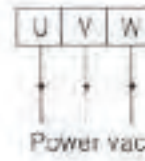
Part Number	Motor	
	100V	200V
202103	○	
202101		○

Hydraulic circuit drawing

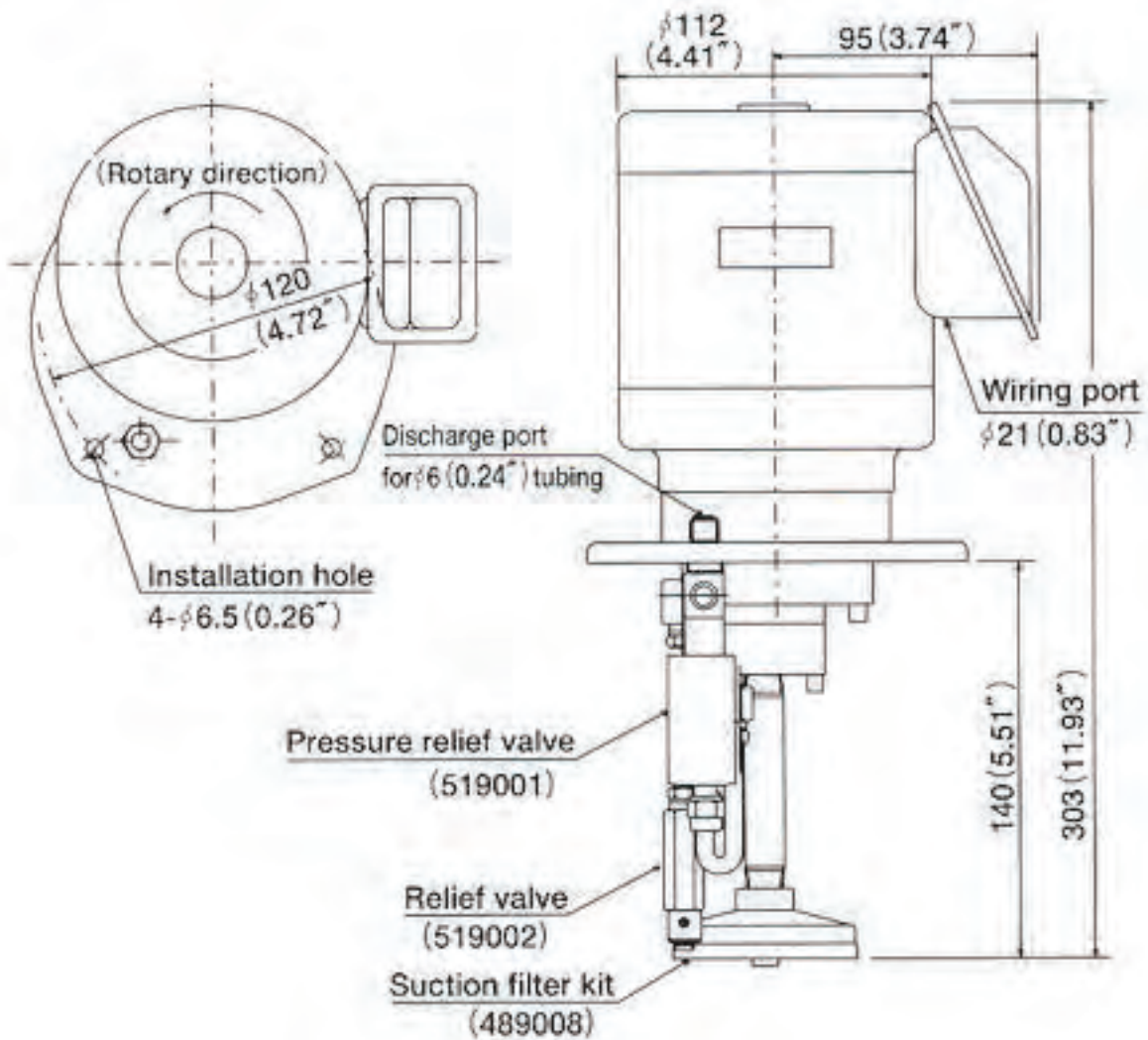


Wiring diagram

Three-phase connection Single-phase connection



Dimensional drawing



Pneumatic piston pump PM

Pneumatically operated piston pump,
discharge and interval controlled through an external
controller.



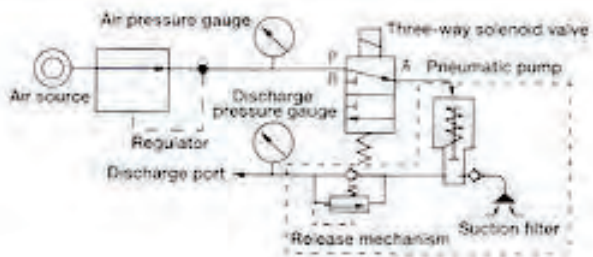
Specifications

Discharge volume	8cc/shot
Discharge pressure	Pump ratio 1:5
Working viscosity range	10~100cSt
Oil level switch	Optional: Installed on a reservoir
Pressure switch	External option
Reservoir capacity	1.8ℓ, 3ℓ: Resin 3ℓ, 4ℓ, 8ℓ : Metal
Others	Air pressure and air consumption volume 0.4Mpa(4kgf/cm ²) 0.27Nℓ/shot 0.5Mpa(5kgf/cm ²) 0.27Nℓ/shot
Weight	1.8ℓ : 1.2kg/2.6lbs

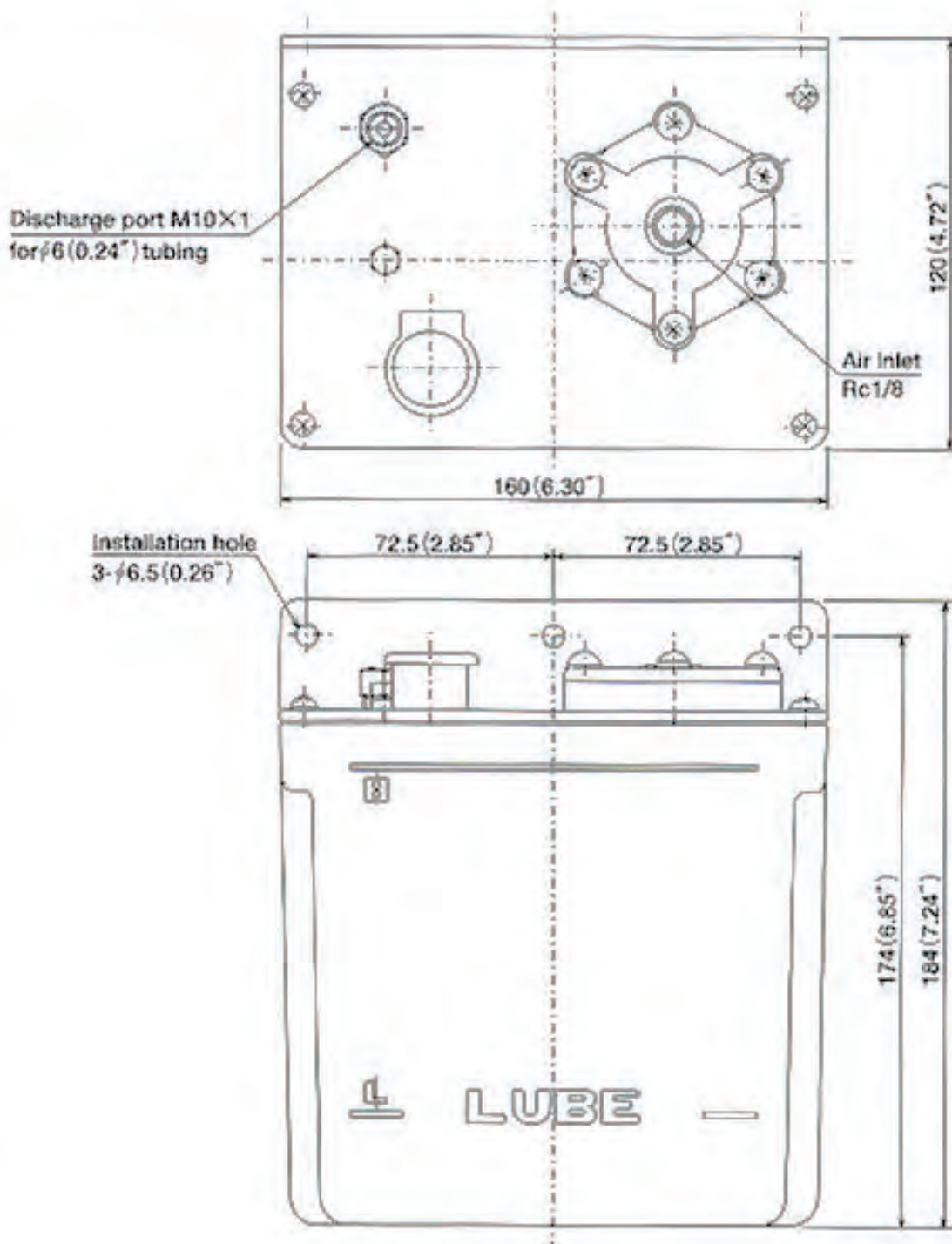
Part Number

	Part Number
Without Oil Level Switch	102660
With Oil Level Switch	112988

Hydraulic circuit drawing



Dimensional drawing



Manual piston pump LT-S

Manually operated pump for use with PDI valves



Specifications

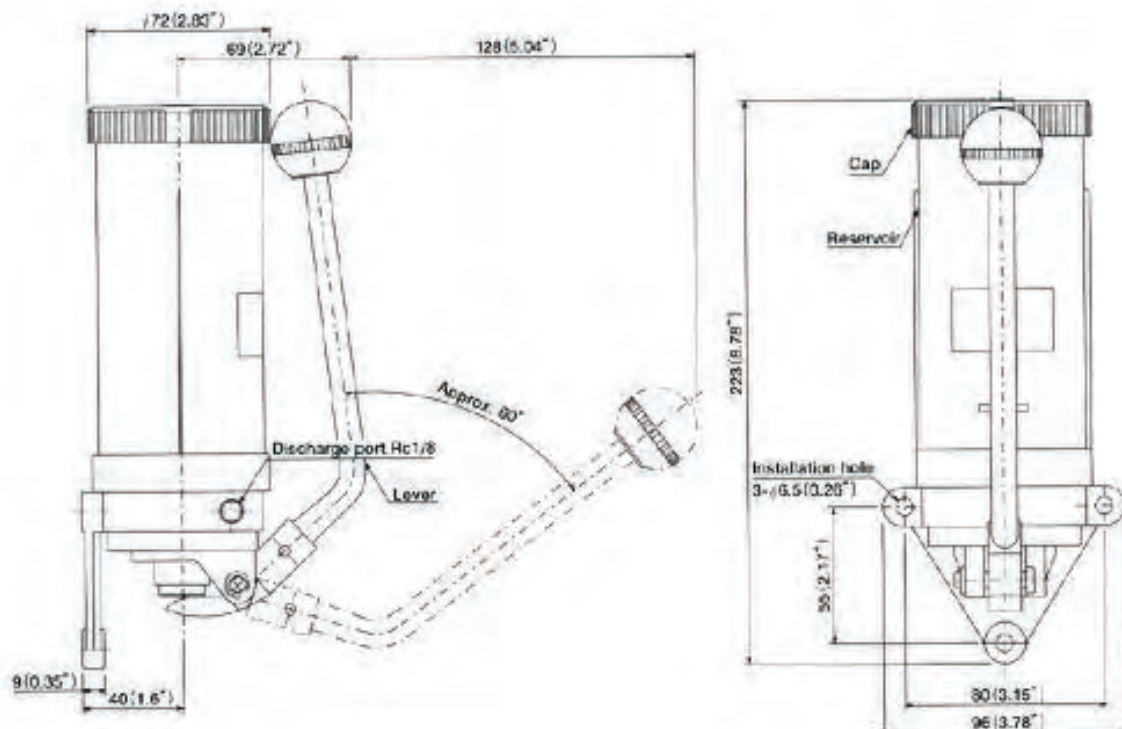
Discharge volume	8cc/shot
Discharge pressure	3.4Mpa(35kg/cm ²)497psi
Working viscosity range	65~1300cSt
Reservoir capacity	260cc: Resin
Others	With pressure relief mechanism
Weight	1.8ℓ : 1.2kg/2.6lbs

Part Number

Part Number

103421

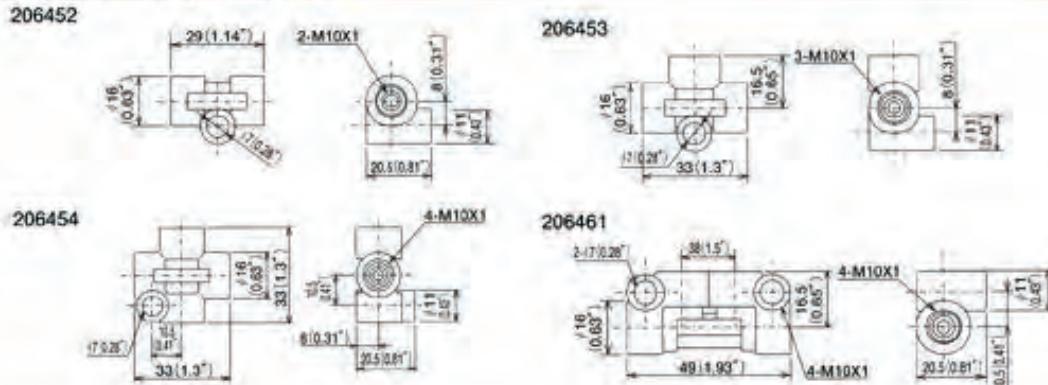
Dimensional drawing



⊗ Junctions (For 6mm/8mm O.D. tubing)



Dimensional drawing



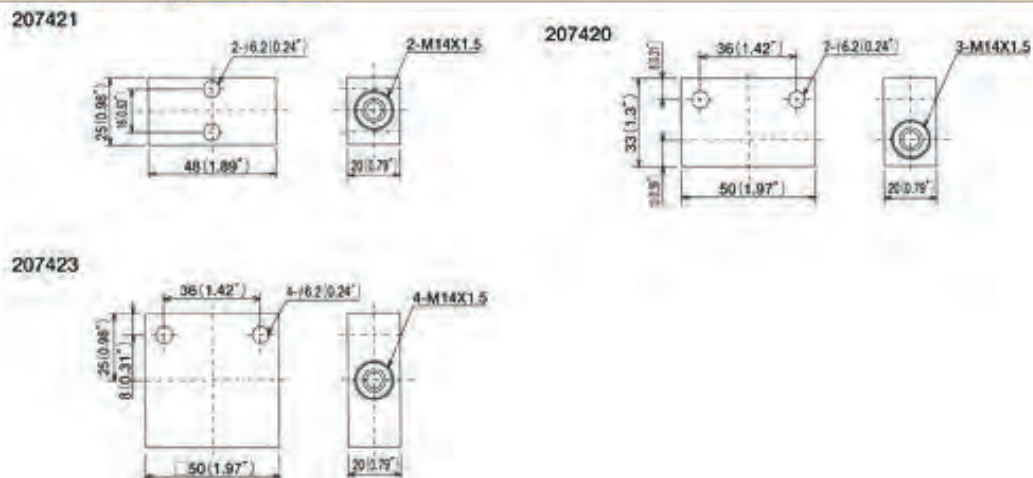
Part Number

For use with 6mm O.D. tubing

Part Number	Model	Specification
206452	PJ-6-2	Two-way
206453	PJ-6-3	Three-way
206454	PJ-6-4	Four-way
206461	PJ-6-4S	Four-way

Material: ZDC

Dimensional drawing



Part Number

For use with 6mm O.D. tubing

Part Number	Model	Specification
207421	PJ8-2M	Two-way
207420	PJ8-3M	Three-way
207423	PJ8-4M	Four-way

MO Metering valve

Positive displacement injectors (PDI) for oil. Up to nine different outputs per stroke are available. Can select proper discharge volume for all of your needs.



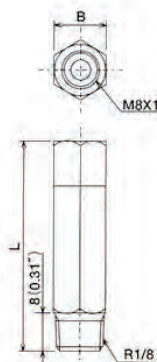
Part Number

Part Number	Model	Mark	Discharge volume (cc)	L (mm)	B
205070	MO-1	1	0.01	44.5	HEX11
205071	MO-3	3	0.03		
205072	MO-5	4	0.05		
205073	MO-10	10	0.1		
205074	MO-20	20	0.2	53.5	HEX11
205075	MO-30	30	0.3		
205076	MO-50	50	0.5	65	HEX19
205077	MO-100	100	1	74.5	
205078	MO-150	150	1.5		

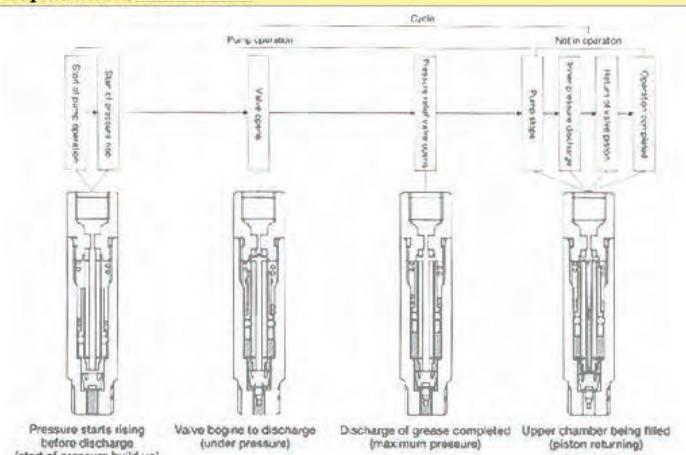
Specifications

Discharge volume	0.01, 0.03, 0.05, 0.1, 0.2, 0.3, 0.5, 1.0, 1.5cc/stroke
Operating pressure	0.9MPa(9kgf/cm ²)130.5psi
Reset pressure	0.3MPa(3kgf/cm ²)43.5psi

Dimensional drawing



Valve operation chart



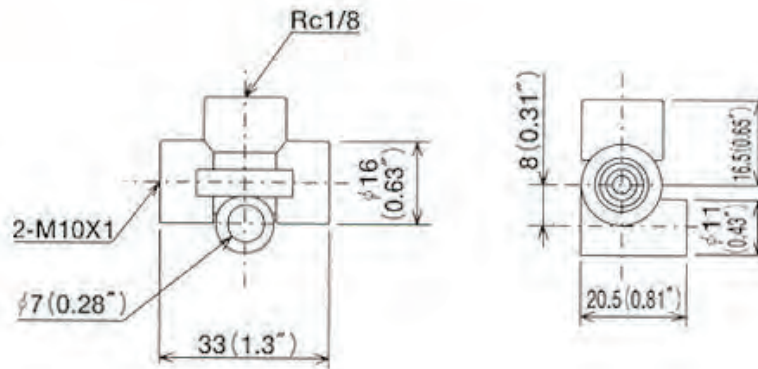
☉ Junctions (For MO valve installation/6mm O.D. tubing)

Part Number

For valve installation-6mm tubing

Part Numbr	Model	Specification
206481	PV-1	Single type for 1 port

Dimensional drawing

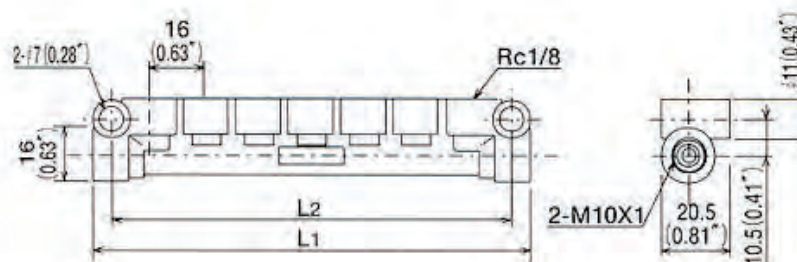


Part Number

Material:ZDC

Part Number	Model	Specification	Size	
			L1	L2
206482	PV-2	Single type for 2port	49(1.93")	38(1.50")
206483	PV-3	Single type for 3port	65(2.56")	54(2.13")
206484	PV-4	Single type for 4port	81(3.19")	70(2.76")
206485	PV-5	Single type for 5port	97(3.82")	86(3.39")
206486	PV-6	Single type for 6port	113(4.45")	102(4.02")
206487	PV-7	Single type for 7port	129(5.08")	118(4.65")
206489	PV-8	Single type for 8port	145(5.71")	138(5.28")

Dimensional drawing



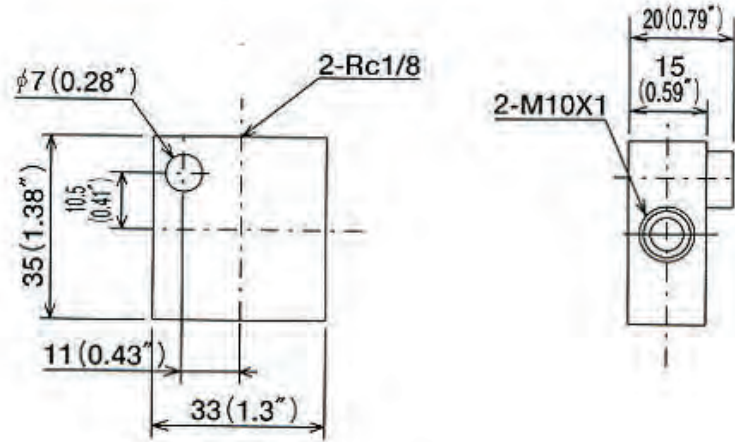
⊗ Junctions (For MO valve installation/6mm O.D. tubing)

Part Number

Material: C3604

Part Number	Model	Specification	Size	
			L1	L2
206491	PV-2D	Double type for 2ports	-	-

Dimensional drawing

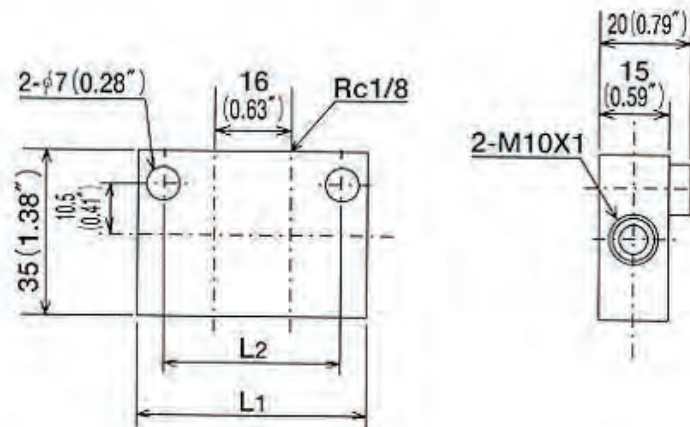


Part Number

Material: ZDC

Part Number	Model	Specification	Size	
			L1	L2
206482	PV-2	Single type for 2port	49(1.93")	38(1.50")
206483	PV-3	Single type for 3port	65(2.56")	54(2.13")
206484	PV-4	Single type for 4port	81(3.19")	70(2.76")
206485	PV-5	Single type for 5port	97(3.82")	86(3.39")
206486	PV-6	Single type for 6port	113(4.45")	102(4.02")
206487	PV-7	Single type for 7port	129(5.08")	118(4.65")
206489	PV-8	Single type for 8port	145(5.71")	138(5.28")

Dimensional drawing



Positive Displacement Injector Valve MO2/MO2C

Easier assembly to Junction and tail tubing connection due to straight thread and push-to-connect fittings.



MO2/MO2C

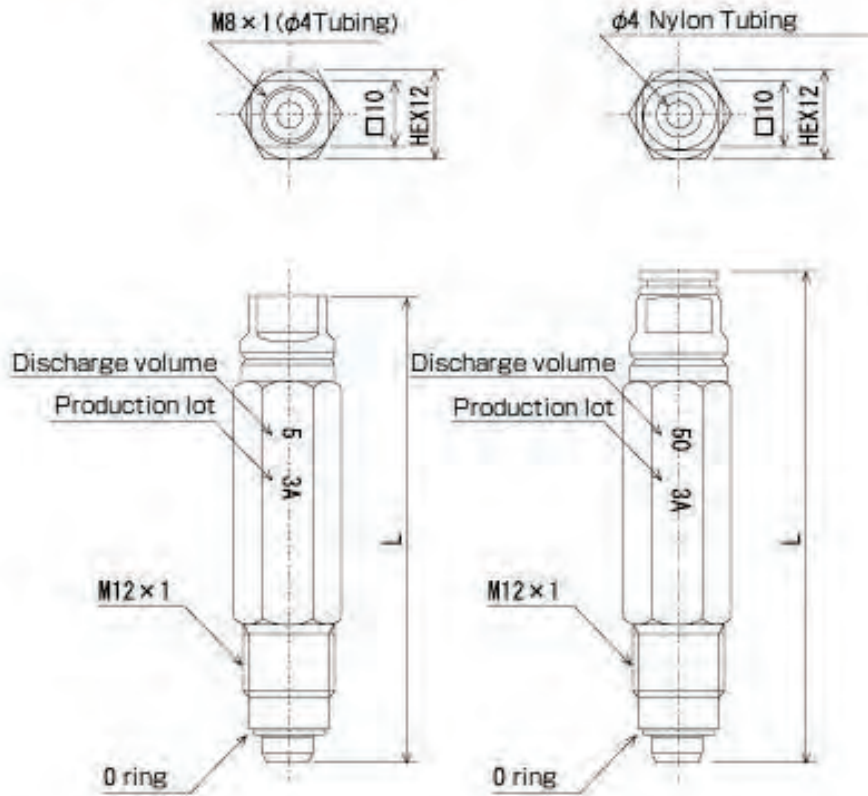
Part Number

Part Number	Model	Mark	discharge volume (cc)	L
202761	MO2-3	3	0.03	48
202762	MO2-5	5	0.05	
202763	MO2-10	10	0.1	
202764	MO2-20	20	0.2	64
202765	MO2-30	30	0.3	
202766	MO2-50	50	0.5	
205751	MO2C-3	3	0.03	53.5
205752	MO2C-5	5	0.05	
205753	MO2C-10	10	0.1	
205754	MO2C-20	20	0.2	69.5
205755	MO2C-30	30	0.3	
205756	MO2C-50	50	0.5	

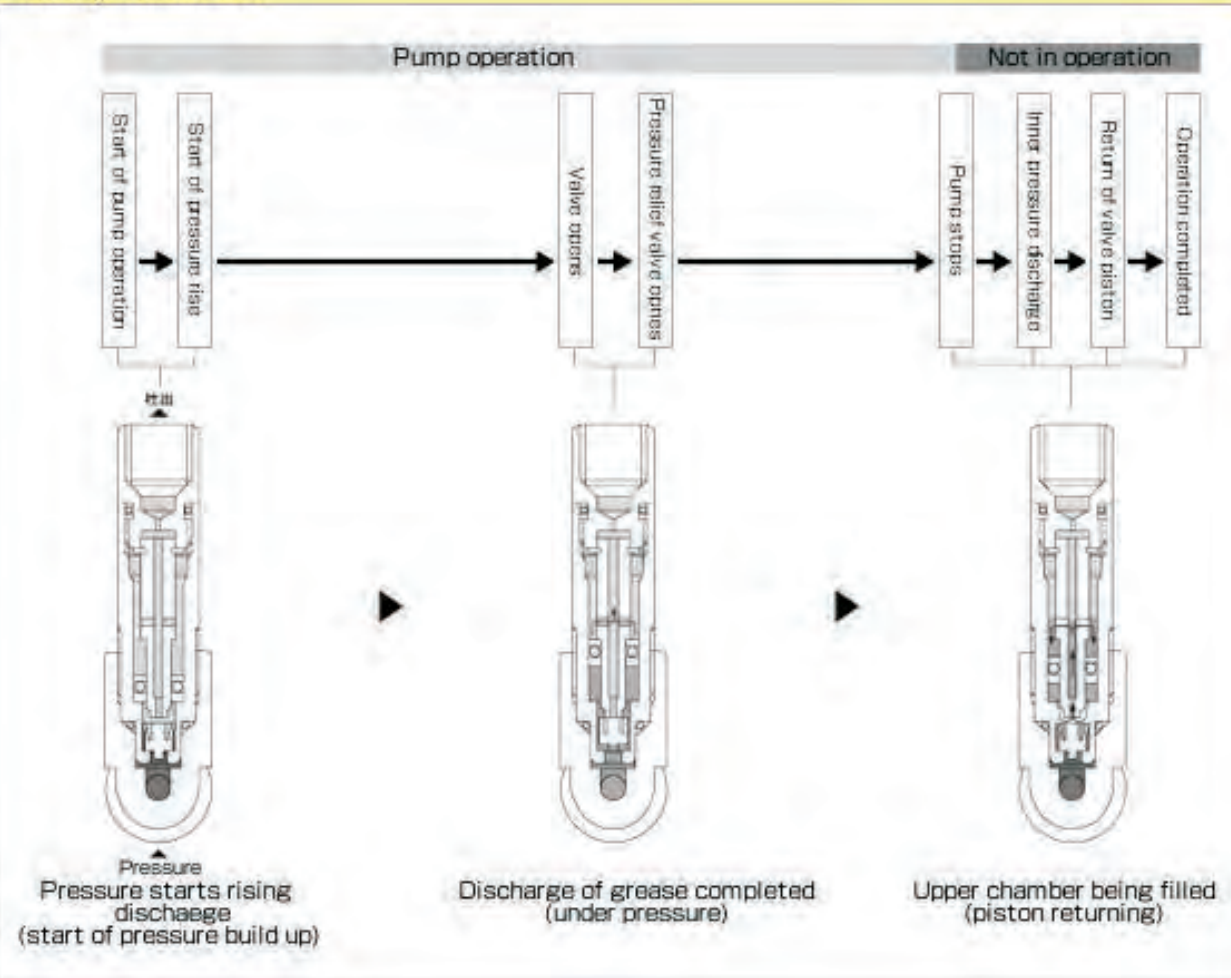
Specifications

Discharge volume	0.03, 0.05, 0.1, 0.2, 0.3, 0.5 ml/stroke
Operating pressure	1.0MPa
Reset pressure	0.3MPa

Dimensional drawing

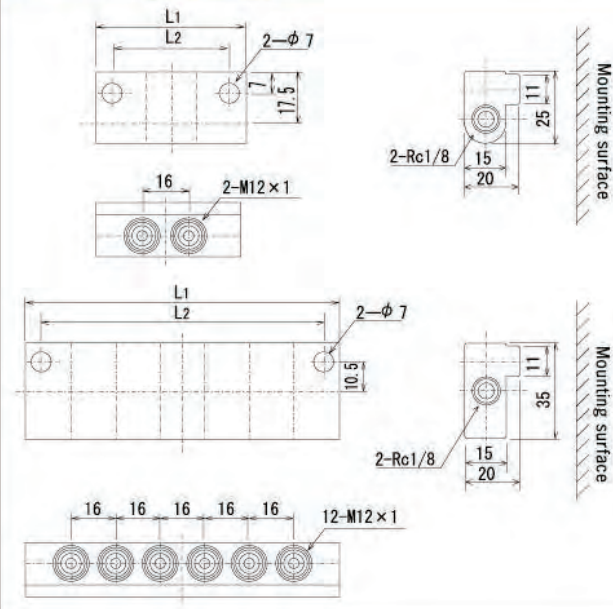


Valve operation chart



Junctions for MO2 & MO2C valve JVPA

Dimensional drawing



Junction
JVPA-2S

Part Number

Model	Part Number	Specification	L1	L2
JVPA- 1S	216001	Single type for 1port	33	22
JVPA- 2S	216002	Single type for 2ports	49	38
JVPA- 3S	216003	Single type for 3ports	65	54
JVPA- 4S	216004	Single type for 4ports	81	70
JVPA- 5S	216005	Single type for 5ports	97	86
JVPA- 6S	216006	Single type for 6ports	113	102
JVPA- 7S	216007	Single type for 7ports	129	118
JVPA- 8S	216008	Single type for 8ports	145	134
JVPA- 9S	216009	Single type for 9ports	161	150
JVPA-10S	216010	Single type for 10ports	177	166

Model	Part Number	Specification	L1	L2
JVPA- 2D	216021	Double type for 2ports	33	11
JVPA- 4D	216022	Double type for 4ports	49	38
JVPA- 6D	216023	Double type for 6ports	65	54
JVPA- 8D	216024	Double type for 8ports	81	70
JVPA-10D	216025	Double type for 10ports	97	86
JVPA-12D	216026	Double type for 12ports	113	102
JVPA-14D	216027	Double type for 14ports	129	118
JVPA-16D	216028	Double type for 16ports	145	134

Junctions for MO2 & MO2C valve JVPA

Related parts

Part Number

Part Number	Model
619803	SCP

Dimensional drawing



Connector Assembly

Part Number

Part Number	Model
619802	BPP

Dimensional drawing



Plug Assembly

Performance Indicator Pin

Visual performance indicators.



KEN-T

KEN-M

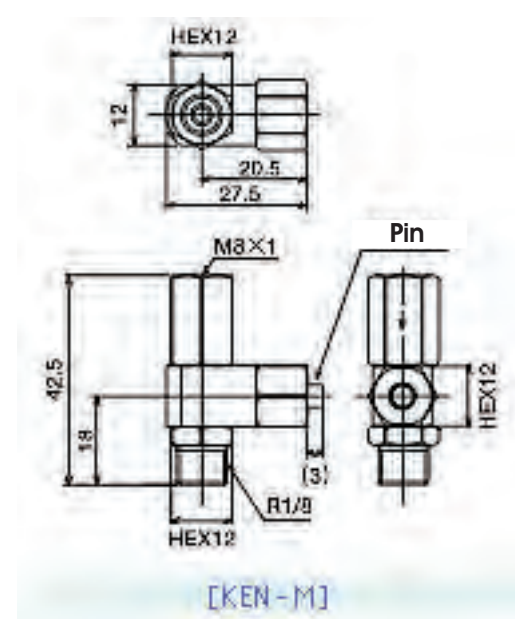
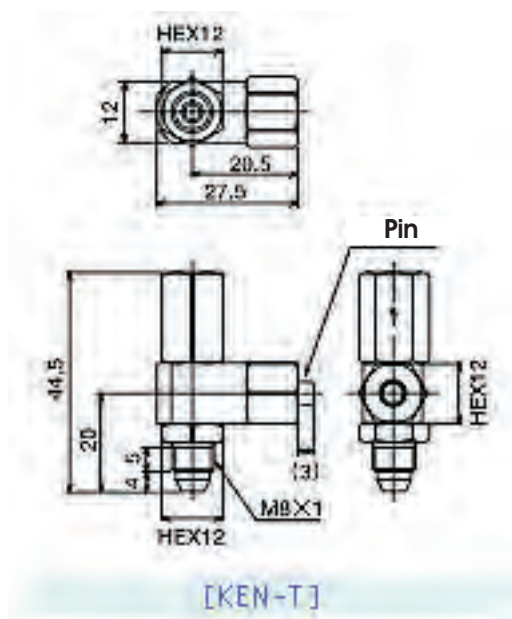
[Directions for use]

- Clogging and/or high back-pressure at the termination points could hinder the lubricant flow.
- Operational temperature range : 0~170c

Part Number

Model	Part Number	Specification
KEN-T	106672	For installing on valves
KEN-M	106673	For lubrication point installation

Drawing



In-Line oil filters help eliminate clogged flow units and MO-valves

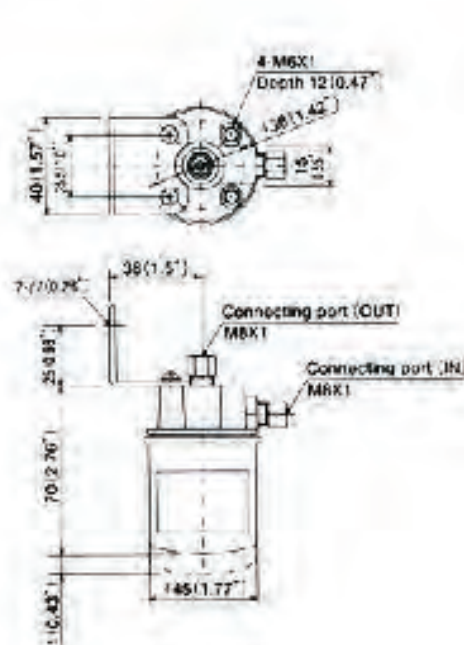


Part Number

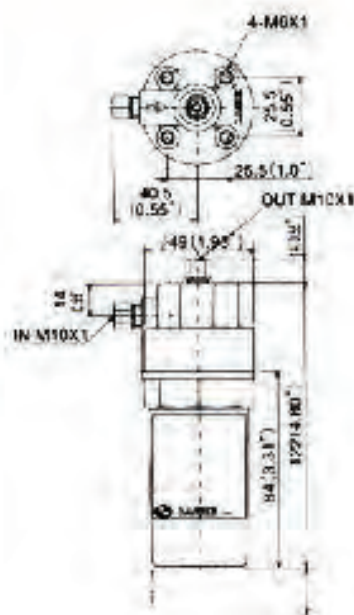
Part Number	Model	Connecting port		Normal working pressure	Pressure loss		Filtration rating
		M8	M10				
189311	FX-1	○		1.0 MPa (10kgf/cm ²)	○		40u
189314			○		○		25u
209343	F-3D		○	Under 2.9 MPa (30kgf/cm ²)	○		125u
209344			○		○		40u
209346			○			○	

Part Number	Model	Filtration rating
259304	For FX-1	40u
259308		25u
259311	For F-3D	125u
259312		40u
259313		10u
259314		5u

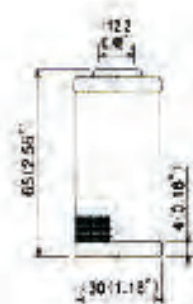
Dimensional drawing



●FX-1(109311)



●F-3D(206308)



●F-3D/filter element

Pressure gauge



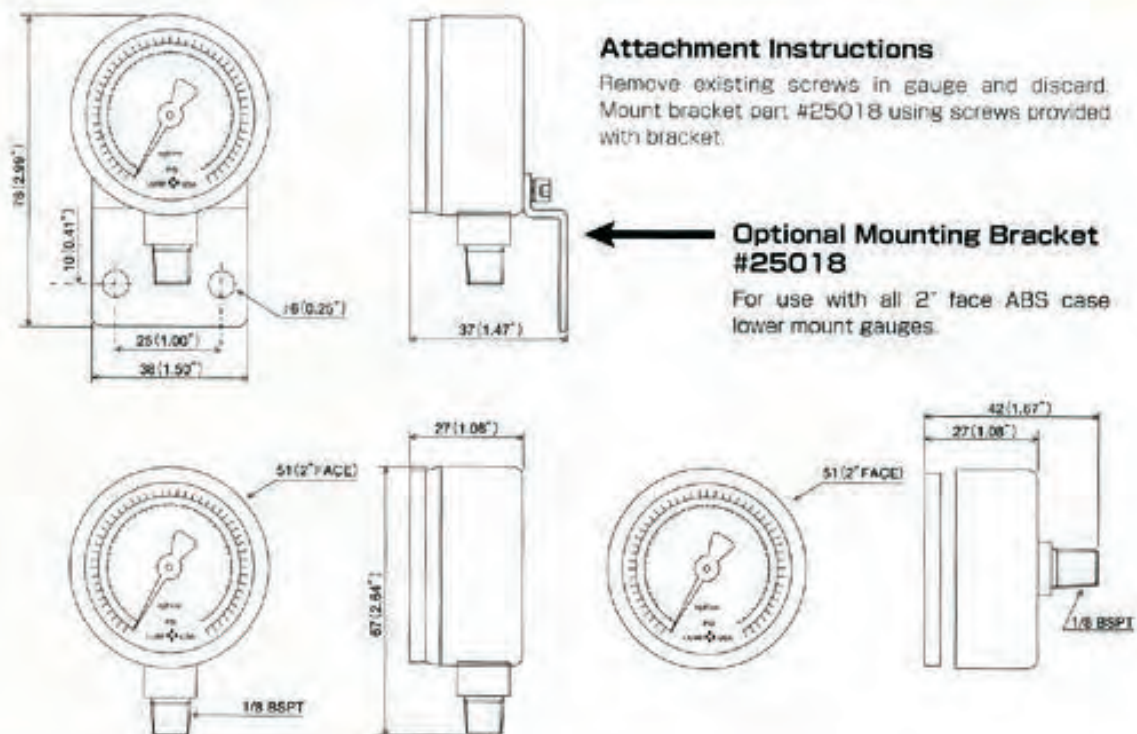
Part Number

Part Number	Pressure range	Thread
25012	0-100 PSI 0-7kgf/cm ²	1/8 BSPT L.M. R1/8
25013	0-200 PSI 0-14kgf/cm ²	1/8 BSPT L.M. R1/8
25014	0-600 PSI 0-43kgf/cm ²	1/8 BSPT L.M. R1/8
25015	0-600 PSI 0-43kgf/cm ²	1/8 BSPT C.B.M. R1/8
35011	0-100 PSI 0-7kgf/cm ²	C.B.M. 1/8 NTP
35012	0-100 PSI 0-7kgf/cm ²	L.M. 1/8 NTP
35010	0-60 PSI 0-7kgf/cm ²	L.M. 1/8 NTP

L.M.: Lower mount connection

C.B.M.: Center back mount connection

Dimensional drawing



Oil level switch

Used for oil level detection



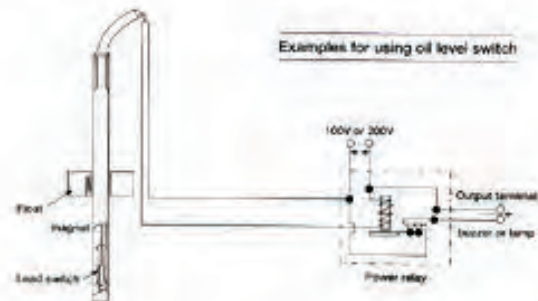
Specification

Contact specification	Maximum working voltage AC200V, DC200V Contact capacity 30W or 0.5A(resistance load)
Working condition	Contact type : N.O. (Normally open) Working temperature range -10°C ~ +80°C / +14°F ~ +176°F (limited to liquid nonfreezing condition) Working liquid specific gravity : over 0.7 Max. pressure : 0.1MPa(10kgf/cm ²)145psi Object liquid : general industrial lubricant (oil)

Part Number

Part Number	Model	Contact type		Specification
		N.O.	N.C.	
109704	W-105	○		Without terminal box Cord length 20cm
109705			○	
109706	W-105-B	○		With terminal box
109707			○	

Dimensional drawing



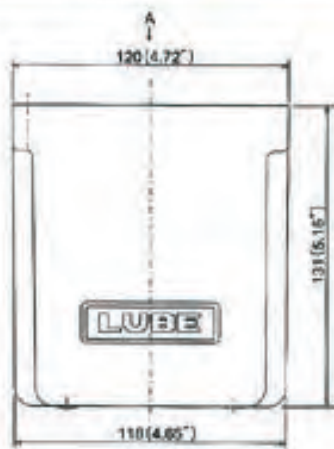
Resin reservoirs 0.8l/1.8l



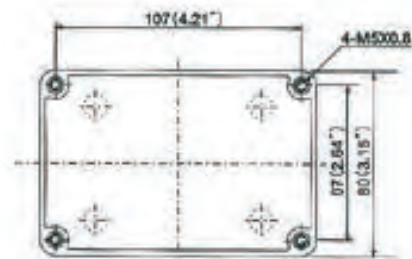
Part Number

Part Number	Model	Useful capacity	Applicable pump
254102	T-8LP	0.8l	L-8,MLZ
609005	T-18LP	1.8l	L-20,AMZ,AMO,AMS,AMR-II, PM,MMX-IIID,MMXL-III

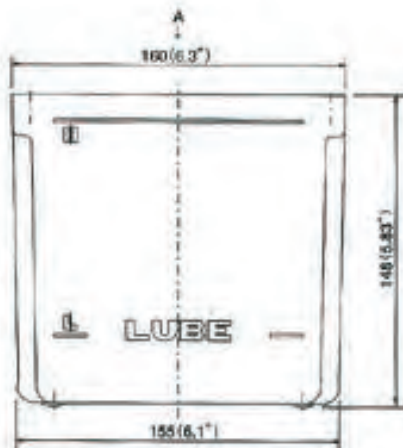
Dimensional drawing



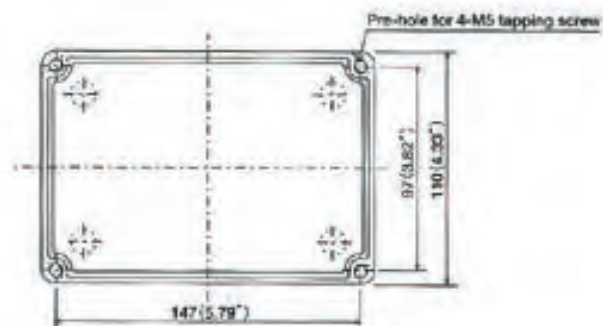
Front view



Top view



Front view



Top view

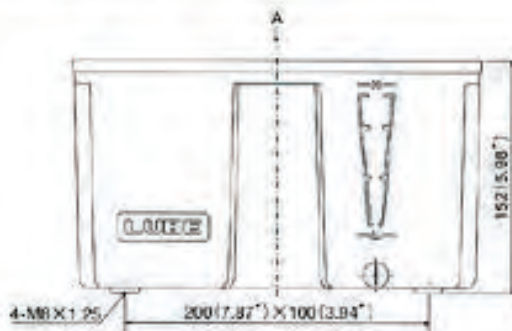
Resin reservoirs 3l



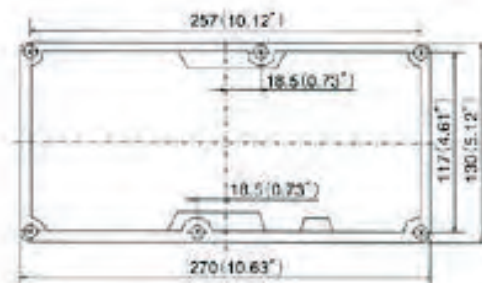
Part Number

Part Number	Model	Pump position		Mounting		Applicable pump
		Right	Left	Foot	Back	
609006	T-30LP	-	-	-	-	MMX-II,MMXL-III,PM,AMR
104657	T-30LP-LX		○	○		
104658	T-30LP-RX	○		○		

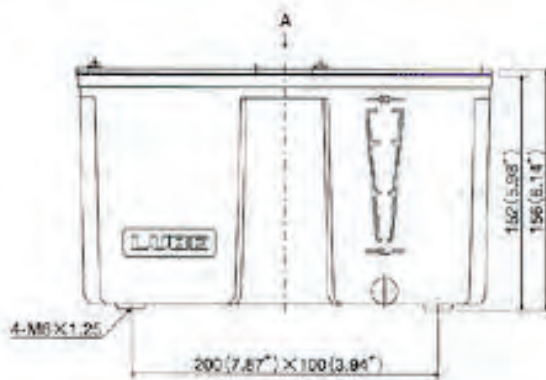
Dimensional drawing



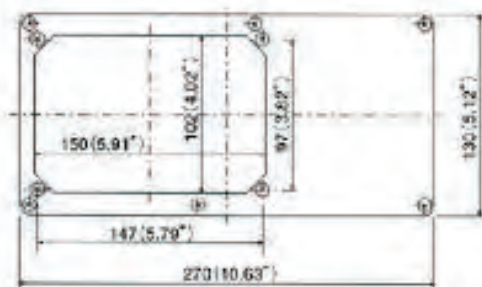
Front view



Top view



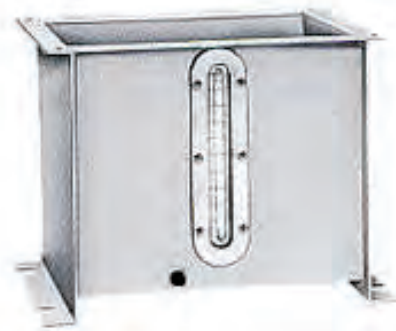
Front view



Top view

Metal reservoirs 3l

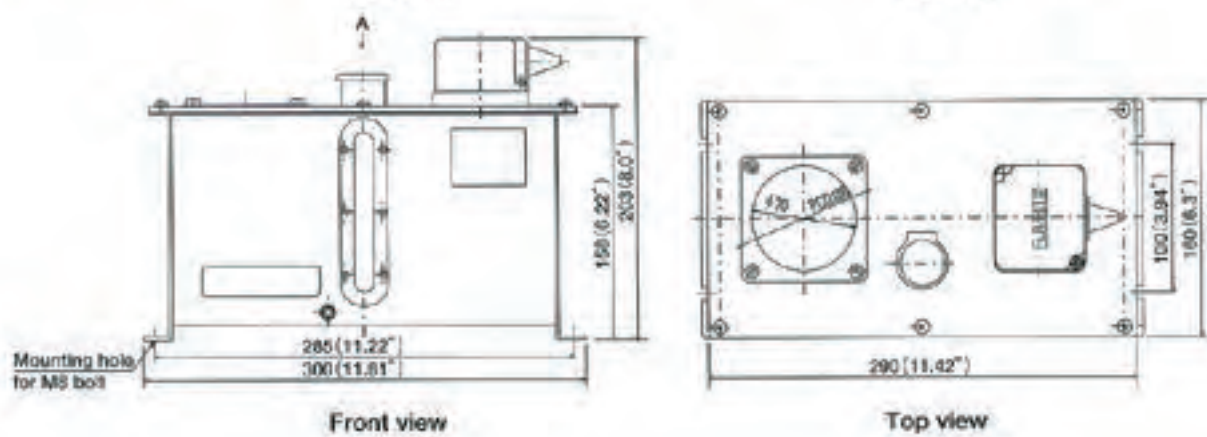
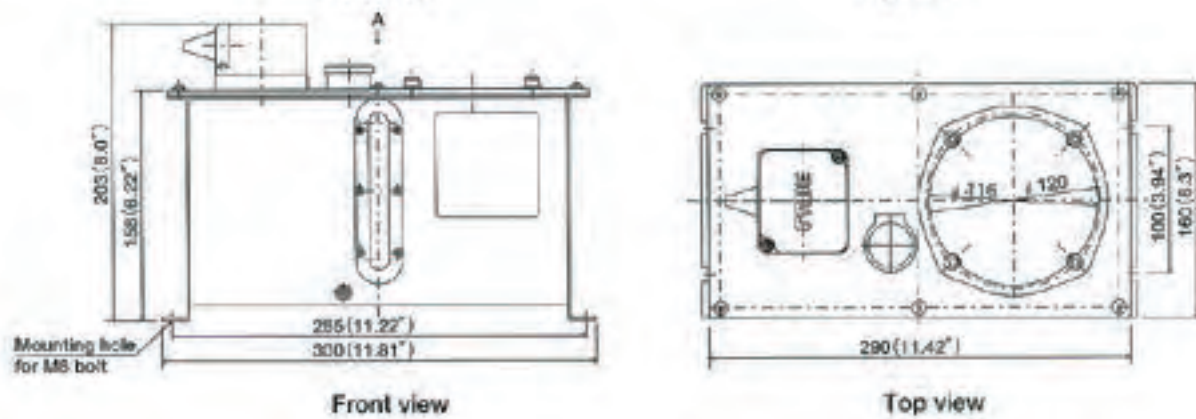
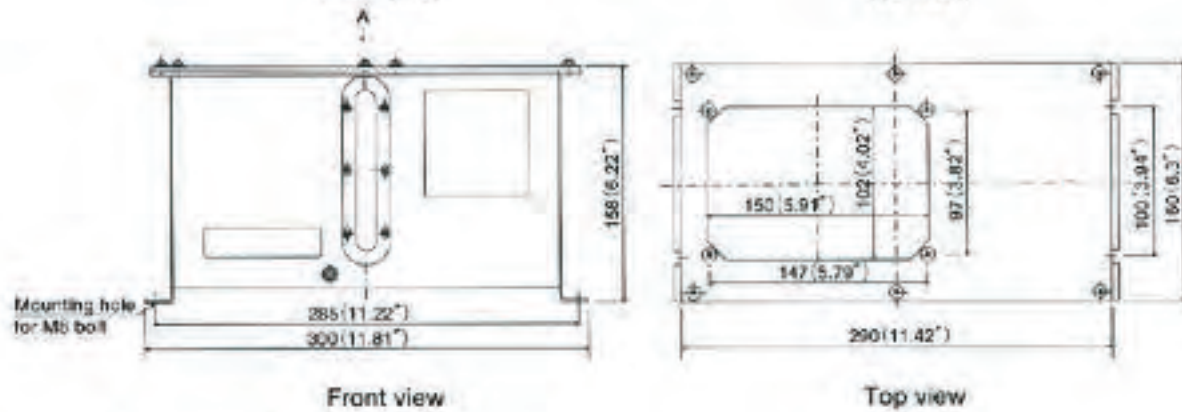
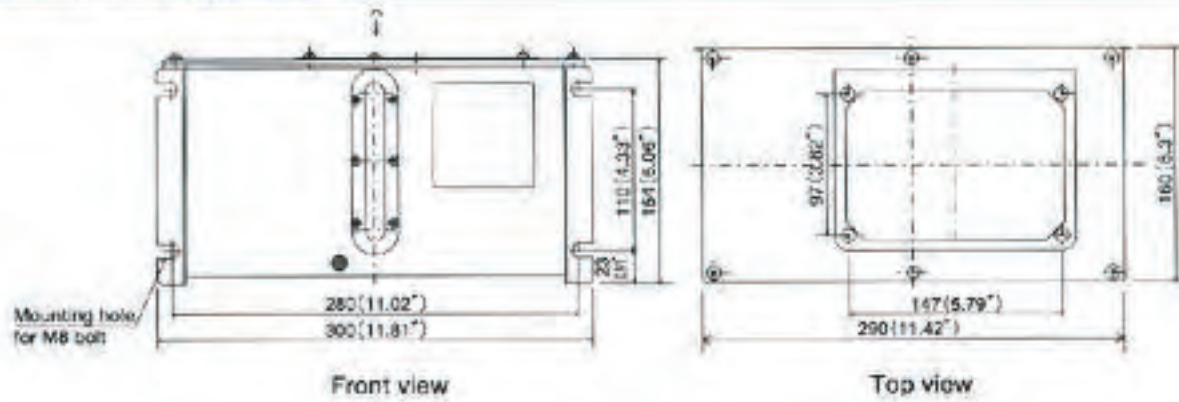
Metal reservoirs 3l



Part Number

Part Number	Model	Pump position		Mounting		Mounting		Meca-tron	Applicable pump
		Right	Left	Foot	Back	Foot	Back		
104313	T-30L-LX		○	○		-	-		MMX-II MMXL-III PM
104413			○		○	-	-		
104314	T-30L-RX	○		○		-	-		
104414		○			○	-	-		
104311	T-30L-LA		○	○			○		AM ACM-II ADM
104411			○		○		○		
104312	T-30L-RA	○		○			○		
104412		○			○		○		
104320	T-30L-OLA		○	○		○			
104420			○		○				
104321	T-30L-ORA	○		○		○			
104421		○			○	○			
104318	T-30L-LH		○	○			○		AMI-300 AMI-300S
104418			○		○		○		
104319	T-30L-RH	○		○			○		
104419		○			○		○		
104324	T-30L-OLH		○	○		○			
104325	T-30L-ORH	○		○		○			
104331	T-30L-OLH- ME		○	○		○		○	
104431			○		○	○		○	
104316	T-30L-LK		○	○			○		AMI-1000 AMI-1000S
104416			○		○		○		
104317	T-30L-RK	○		○			○		
104417		○			○		○		
104322	T-30L-OLK		○	○		○			
104422			○		○	○			
104323	T-30L-ORK	○		○		○			
104423		○			○	○			
104332	T-30L-OLK- ME		○	○				○	
104432			○		○			○	
104326	T-30L-AO	○		○		-	-		AMO,AMZ AMO-IIID,AMR
104426		○			○	-	-		

Dimensional drawing

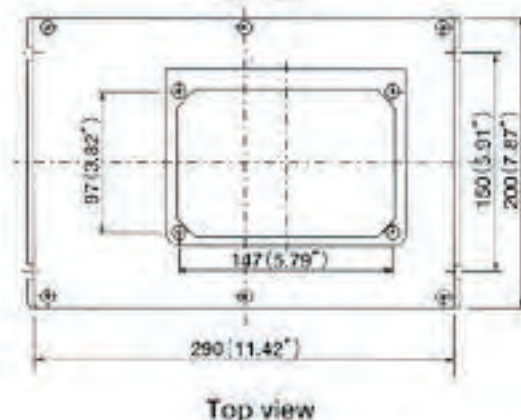
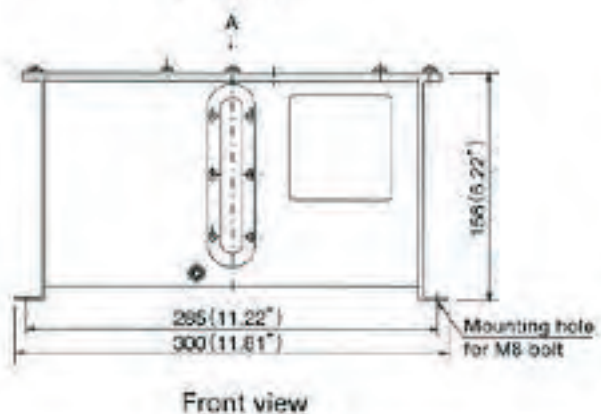
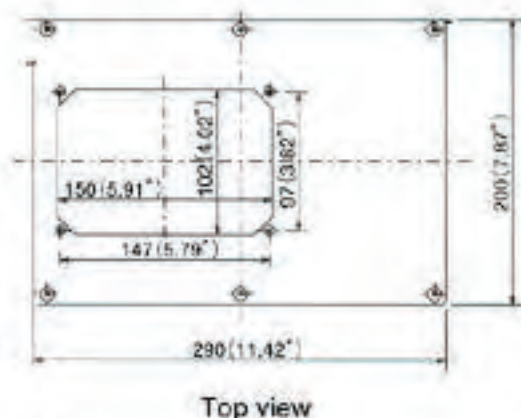
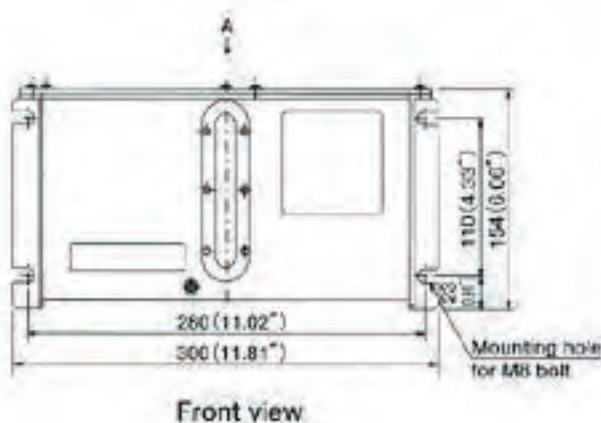
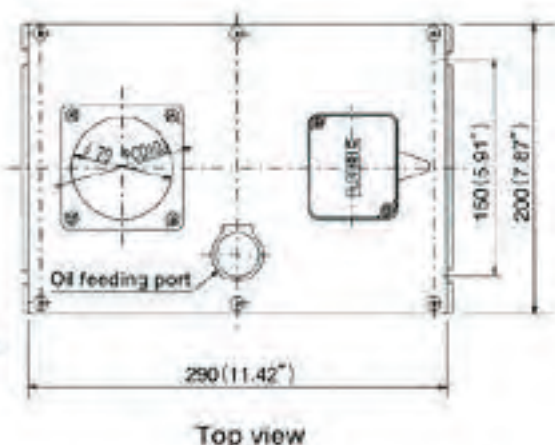
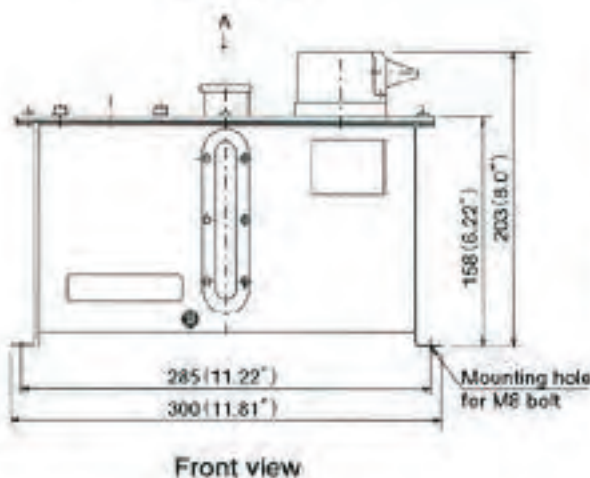
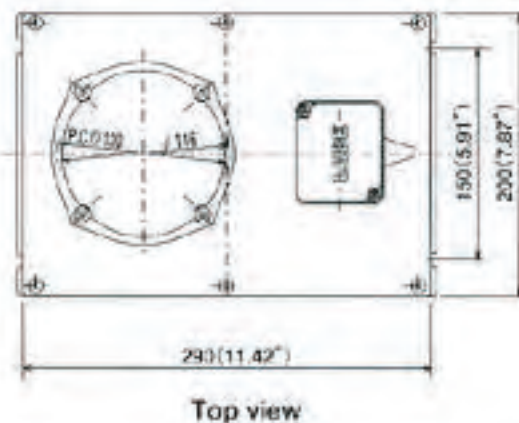
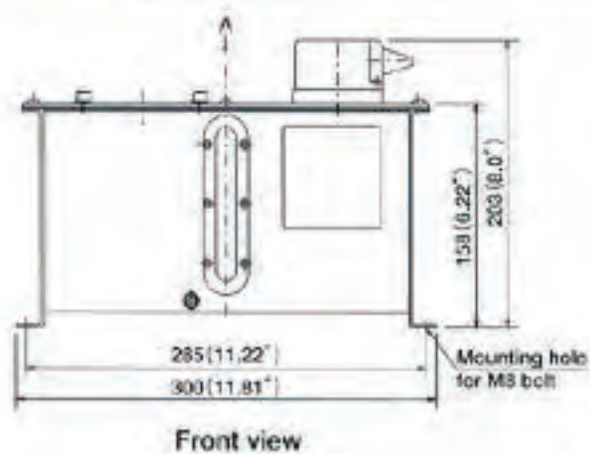


☉ Metal reservoirs 4l



Part Number									
Part Number	Model	Pump position		Mounting		Mounting		Meca-tron	Applicable pump
		Right	Left	Foot	Back	Foot	Back		
104343	T-40L-LX		○	○		-	-		MMX-II MMXL-III
104443			○		○	-	-		
104344	T-40L-RX	○		○		-	-		
104444		○			○	-	-		
104341	T-40L-LA		○	○			○		AM ACM-II ADM
104441			○		○		○		
104342	T-40L-RA	○		○			○		
104442		○			○		○		
104350	T-40L-OLA		○	○		○			
104450			○		○	○			
104351	T-40L-ORA	○		○		○			
104451		○			○	○			
104348	T-40L-LH		○	○			○		AMI-300 AMI-300S
104448			○		○		○		
104349	T-40L-RH	○		○			○		
104449		○			○		○		
104354	T-40L-OLH		○	○		○			
104454			○		○	○			
104355	T-40L-ORH	○		○		○			
104455		○			○	○			
104361	T-40L-OLH- ME		○	○		○		○	
104461			○		○	○		○	
104346	T-40L-LK		○	○			○		AMI-1000 AMI-1000S
104446			○		○		○		
104347	T-40L-RK	○		○			○		
104447		○			○		○		
104352	T-40L-OLK		○	○		○			
104452			○		○	○			
104353	T-40L-ORK	○		○		○			
104453		○			○	○			
104362	T-40L-OLK- ME		○	○				○	
104462			○		○			○	
104356	T-40L-AO	○		○		-	-		AMO,AMZ AMO- IID,AMR
104456		○			○	-	-		

Dimensional drawing

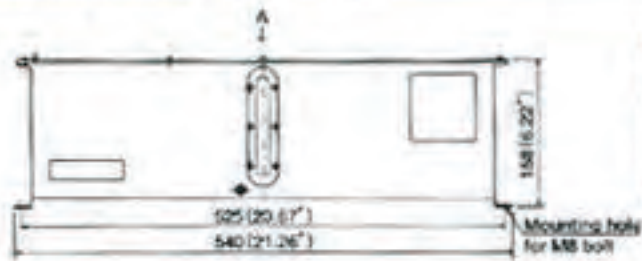


☉ Metal reservoirs 8l

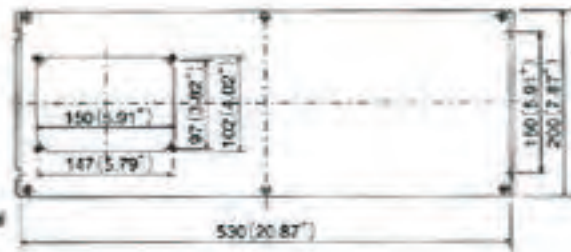


Part Number									
Part Number	Model	Pump position		Mounting		Mounting		Meca-tron	Applicable pump
		Right	Left	Foot	Back	Foot	Back		
104373	T-80L-LX		○	○		-	-		MMX-II MMXL-III
104473			○		○	-	-		
104374	T-80L-RX	○		○		-	-		
104474		○			○	-	-		
104371	T-80L-LA		○	○			○		AM ACM-II ADM
104471			○		○		○		
104372	T-80L-RA	○		○			○		
104472		○			○		○		
104380	T-80L-OLA		○	○		○			
104480			○		○	○			
104381	T-80L-ORA	○		○		○			
104481		○			○	○			
104378	T-80L-LH		○	○			○		
104478			○		○		○		
104379	T-80L-RH	○		○			○		
104479		○			○		○		
104384	T-80L-OLH		○	○		○			
104484			○		○	○			
104385	T-80L-ORH	○		○		○			
104485		○			○	○			
104391	T-80L-OLH- ME		○	○		○			
104491			○		○	○			
104376	T-80L-LK		○	○			○		
104476			○		○		○		
104377	T-80L-RK	○		○			○		
104477		○			○		○		
104382	T-80L-OLK		○	○		○			
104482			○		○	○			
104383	T-80L-ORK	○		○		○			
104483		○			○	○			
104392	T-80L-OLK- ME		○	○			○		
104492			○		○		○		
104386	T-80L-AO	○		○		-	-		
104486		○			○	-	-		

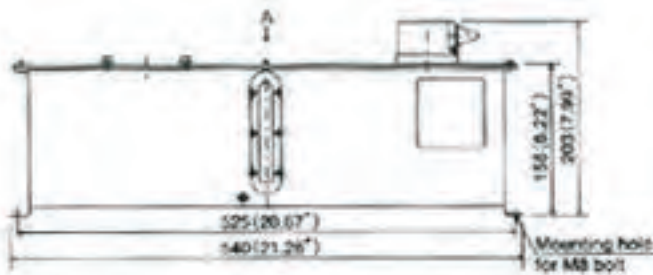
Dimensional drawing



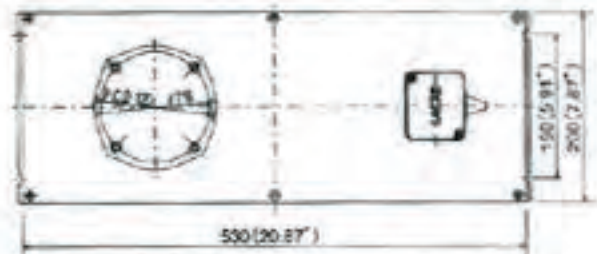
Front view



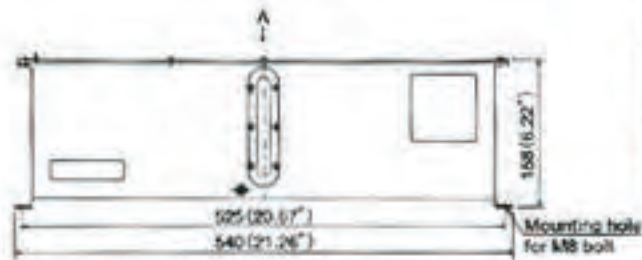
Top view



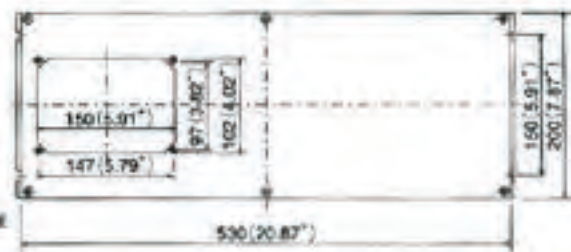
Front view



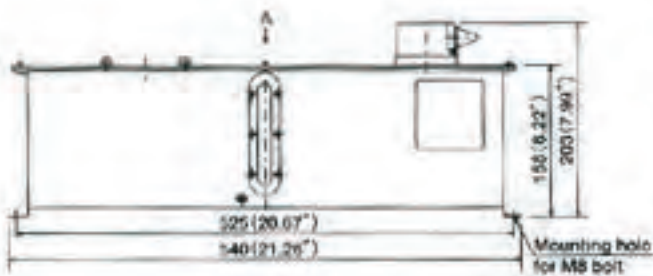
Top view



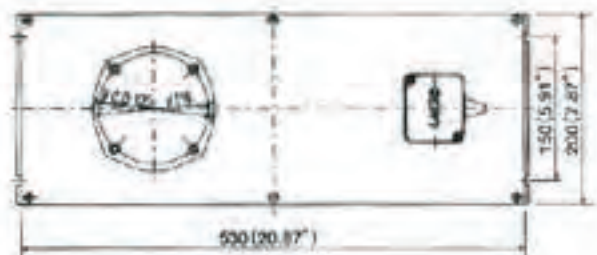
Front view



Top view



Front view



Top view

Compression parts

Used for connecting tubing to junctions, adapters and metering valves



Dimensional drawing



Part Number

Compression nut

Part Number	Model	Tubing O.D.		T	d1	d2	B
		φ4	φ6				
106251	CN-4	○		M8×1	φ4.2	φ10	HEX10
186251	CN-4	○		5/16-24	φ5/32	φ10	HEX10
206251	CN-6	-	○	M10×1	φ6.2	φ12	HEX12

Material : C3604

Compression parts

Dimensional drawing



Part Number

Compression bushing

Part Number	Model	Tubing O.D			T	d	L1	L2	B
		φ4	φ6	φ8					
106252	CB-4(10)	○			M8×1	φ4.2	11.6 (0.46")	4 (0.16")	HEX10
186252	CB-4	○			5/16-24	φ5/32	11.6 (0.46")	4 (0.16")	HEX10
106253	CB-4(8)	○			M8×1	φ4.2	11.6 (0.46")	4 (0.16")	HEX8
186253	CB-4	○			5/16-24	φ5/32	11.6 (0.46")	4 (0.16")	HEX8
206252	CB-6		○		M10×1	φ6.2	12.5 (0.49")	4 (0.16")	HEX10
207252	CB-8			○	M14×1.5	φ8.2	16 (0.63")	4.5 (0.18")	HEX14
166253	CB-4	○			M8×1	φ4.2	20 (0.79")	12 (0.47")	HEX8
166255	CB-6		○		M10×1	φ6.2	20 (0.79")	12 (0.47")	HEX10

Note : 166253 and 166255 are for braided tubing.

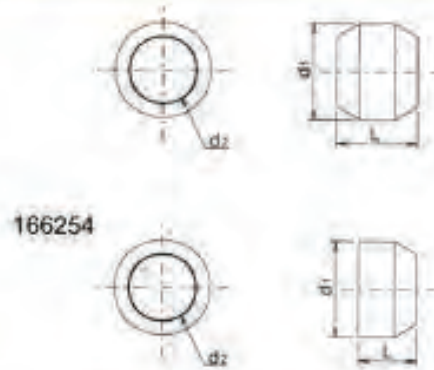
Material : C3604

Part Number	Model	Tubing O.D			T	d	L1	L2	B
		φ4	φ6	φ8					
106279	CB-4(8)	○			M8×1	φ4.2	11.6 (0.46")	4 (0.16")	HEX8
186268	CB-4(8)	○			5/16-24	φ4.2	11.6 (0.46")	4 (0.16")	HEX8

Material : SUS

Compression parts

Dimensional drawing



Part Number

Compression sleeve

Part Number	Model	Tubing O.D			d1	d2	L1
		φ4	φ6	φ8			
106254	CS-4	○			φ6	φ4.1	5(0.20")
206254	CS-6		○		φ8	φ6.1	6(0.24")
207254	CS-8			○	φ10	φ8.1	6.5(0.26")

Material : C3604

Part Number	Model	Tubing O.D			d1	d2	L1
		φ4	φ6	φ8			
106280	CS-4	○			φ6	φ4.1	5(0.20")

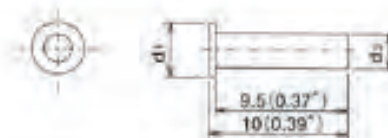
Material : SUS

Half sleeve

Part Number	Model	Tubing O.D			d1	d2	L1
		φ4	φ6	φ8			
166254	CS-4	○			φ4	φ4.1	4.5(0.18")

Material : C3604

Dimensional drawing



Tube insert

Part Number	Model	Tubing O.D			d1	d2
		φ4	φ6	φ8		
106271	TI-4	○			φ3.8	φ2.5
206271	TI-6		○		φ5.8	φ4
207271	TI-8			○	φ7.8	φ6

Material : C2680

Closure plugs/Sealing washers



Dimensional drawing



Part Number

Closure plug

Part Number	Model	L1	L2	T	B
106255	CP-4	16(0.63")	12(0.47")	M8×1	HEX8
186255	CP-4	16(0.63")	12(0.47")	5/16-24	HEX8
206255	CP-6	20(0.79")	15(0.59")	M10×1	HEX10
207255	CP-8	25(0.98")	17(0.67")	M14×1.5	HEX17

Material : C3604

Dimensional drawing



Part Number

Blanking plug

Part Number

540170

Closure plugs/Sealing washers

Dimensional drawing



Part Number

Blanking plug

Part Number	Model	T	L1	L2	B
206275	BP-10	M10×1	10(0.39")	6(0.24")	12
206276	BP-12	M12×1	10(0.39")	6(0.24")	14
207276	BP-14	M14×1.5	13(0.51")	8(0.31")	17

Material : C3604

Dimensional drawing



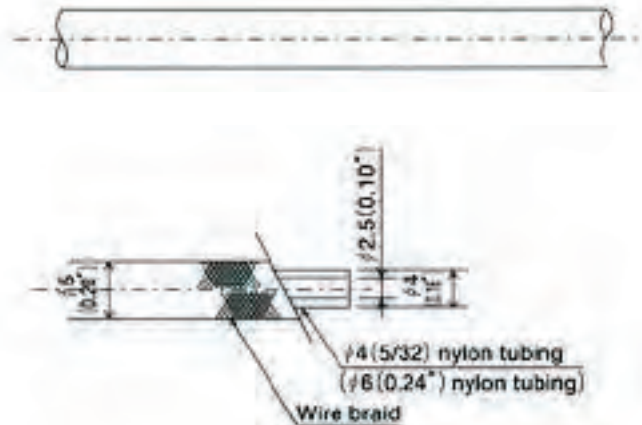
Part Number

Sealing washer

Part Number	Model	D1	D2	t	Thread size
207611	SW-10	φ14	φ10.1	1	M10×1
207612	SW-12	φ16	φ2.1	1.5	M12×1
207613	SW-14	φ18	φ14.1	1.5	M14×1.5

Material : C2600

Tubing



Part Number

Nylon tubing

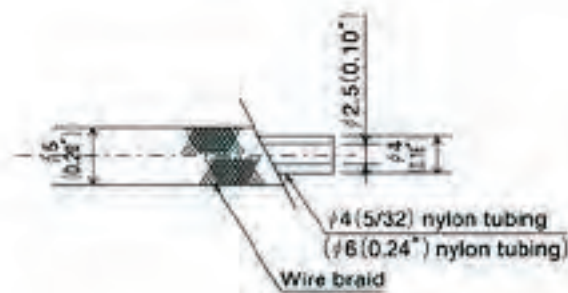
Part Number	Outer diameter	Inner diameter	Standard length	Working pressure	Burst Pressure	Working temperature range	Minimum bending radius	Color
106801	φ4	φ2.5	100M (330F)	2.5MPa (25kgf/cm ²) 362psi	9.8MPa (100kgf/cm ²) 1,450psi	-20°C/-40°F ~+70°C/158°F	R12	Opaque white
106806	φ4	φ2.5		4.4MPa (45kgf/cm ²) 652psi	17.6MPa (180kgf/cm ²) 2,610psi		R16	
218005	φ6	φ4		2.2MPa (22kgf/cm ²) 319psi	8.6MPa (88kgf/cm ²) 1,276psi		R24	
208006	φ6	φ4		3.7MPa (38kgf/cm ²) 551psi	15.2MPa (155kgf/cm ²) 2,247psi		R27	Opaque white
218003	φ8	φ6		1.5MPa (15kgf/cm ²) 217psi	6.2MPa (63kgf/cm ²) 913psi		R48	

Material:nylon

Braided tubing

Part Number	Outer diameter	Standard length	Working pressure	Burst Pressure	Working temperature range	Minimum bending radius	Surface treatment
106803	φ4	100M (330F)	2.5MPa (25kgf/cm ²) 362psi	9.8MPa (100kgf/cm ²) 1,450psi	-20°C/-40°F ~+70°C/158°	R16	EP-Fe/Zn
218007	φ6	100M (330F)	2.2MPa (22kgf/cm ²) 319psi	8.6MPa (88kgf/cm ²) 1,276psi	-20°C/-40°F ~+70°C/158°	R27	EP-Fe/Zn

Tubing



Aluminium tubing

Part Number	Outer diameter	Inner diameter	Standard length	Tensile strength	Extension
106811	φ4	φ3	2M (65F)	6~10kgf/mm	41%
206811	φ6	φ4.4			

Material: JIS H4080A1050TD-0 (aluminium drawn tube)

Copper Tubing

Part Number	Outer diameter	Inner diameter	Standard length	Working pressure	Tensile strength	Inner diameter
106821	φ4	φ3	5M (16F)	6.9MPa (70kgf/cm ²) 1,015psi	20kgf/mm	40%
218015	φ6	φ4.4		7.9MPa (80kgf/cm ²) 1,160psi	21kgf/mm	
206823	φ8	φ6		5.9MPa (60kgf/cm ²) 870psi	23kgf/mm	

Material: JIS H3300C1220T-0L (phosphor deoxydized copper)

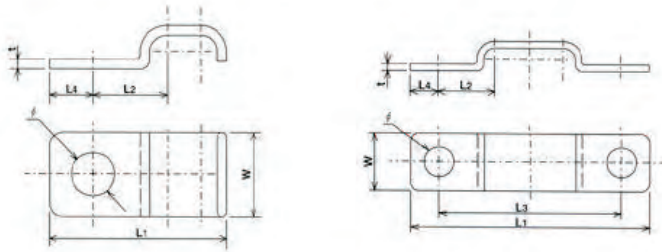
Steel tubing

Part Number	Outer diameter	Inner diameter	Standard length	Standard length	Tensile strength	Extension	Surface treatment	
218011	φ4	φ2.6	2M (6.5F)		Over 30kgf/mm	25%	Ep-Fe/Zn 8/CM	
218012	φ6	φ4.6						24.5MPa (250kgf/cm ²) 3,625psi
206836	φ8	φ6.6						19.6MPa (200kgf/cm ²) 2,900psi
206837	φ10	φ8.6						

Material: JIS G3141 (Equivalent to SPCC)

Tube clips

Dimensional drawing



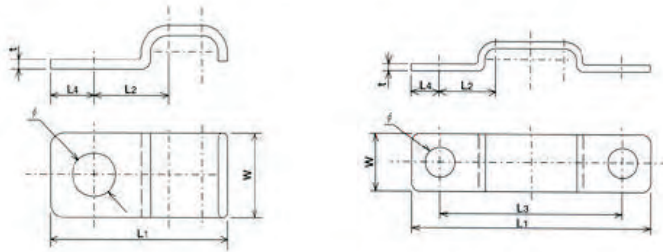
Part Number

Straight tube end

Part Number	Model	Number and O.D. of tubing		L1	L2	L3	L4	t	W	φ
106301	PC-4-1	φ4×1	One side fixed	17 (0.67")	9 (0.35")	-	5 (0.20")	1.2	10	5.2
106302	PC-4-2	φ4×2		21 (0.87")	9 (0.35")	-				
106303	PC-4-3	φ4×3		25 (0.98")	9 (0.35")	-				
106304	PC-4-4	φ4×4	42 (1.65")	10 (0.39")	32 (1.26")					
106305	PC-4-5	φ4×5	46 (1.81")	10 (0.39")	36 (1.42")					
106306	PC-4-6	φ4×6	50 (1.97")	10 (0.39")	40 (1.57")					
106311	PC-4-1L	φ4×1	One side fixed	16 (0.63")	9 (0.35")	-				
106312	PC-4-2L	φ4×2		20 (0.79")	9 (0.35")	-				
106314	PC-4-4L	φ4×4	Two side fixed	42 (1.65")	10 (0.39")	32 (1.26")				
106315	PC-4-5L	φ4×5		46 (1.81")	10 (0.39")	36 (1.42")				
106316	PC-4-6L	φ4×6		50 (1.97")	10 (0.39")	40 (1.57")				
106321	PC-4-4-8.5	φ4×1	One side fixed	22 (0.87")	11 (0.43")	-	8 (0.31")	15	8.5	
106322	PC-4-2-8.5	φ4×2		26.2 (1.03")	11 (0.43")	-				
106323	PC-4-3-8.5	φ4×3		30.4 (1.20")	11.2 (0.44")	-				
106324	PC-4-4-8.5	φ4×4	Two side fixed	50 (1.97")		34 (1.34")				
106325	PC-4-5-8.5	φ4×5	One side fixed	38.4 (1.51")	11.2 (0.44")	-				

☉ Tube clips

Dimensional drawing



Part Number	Model	Number and O.D. of tubing		L1	L2	L3	L4	t	W	φ
206301	PC-6-1	φ6×1	One side fixed	20 (0.79")	10 (0.39")	-	5 (0.20")	1.2	10	5.2
206302	PC-6-2	φ6×2		25 (0.98")	10 (0.39")	-				
206303	PC-6-3	φ6×3		31 (1.22")	10 (0.39")	-				
206311	PC-6-1L	φ6×1		19 (0.75")	10 (0.39")	-				
2063012	PC-6-2L	φ6×2		24 (0.94")	10 (0.39")	-	8 (0.31")		15	8.5
206313	PC-6-3L	φ6×3		30 (1.18")	10 (0.39")	-				
206321	PC-6-1-8.5	φ6×1		24.2 (0.95")	12 (0.47")	-				
206322	PC-6-2-8.5	φ6×2		30.4 (1.20")	12 (0.47")	-				

Part Number	301Model	Number and O.D. of tubing		L1	L2	L3	L4	t	W	φ
207301	PC-8-1	φ8×1	One side fixed	23.7 (0.93")	12 (0.47")	-	5 (0.20")	1.6	11.5	6.4
207302	PC-8-2	φ8×2		31.8 (1.25")	12 (0.47")	-				
208301	PC-10-3	φ10×3		29.2 (1.15")	14 (0.57")	-	8 (0.31")			

Flexible hose

For low pressure



Dimensional drawing



Part Number		L(mm)
φ4	φ6	
106701	206701	125
106702	206702	150
106731	206703	175
106704	206704	200
106705	206705	225
106706	206706	250
106707	206707	300
106708	206708	350
106709	206709	400
106710	206710	450
106711	206711	500
106712	206712	6550
106713	206712	600
106770	206736	625
106771	206735	650
106714	206714	675
106772	206717	700
106715	206715	750
106773	206718	800
106716	206716	825

Flexible hose

For low pressure

106717	206719	850
106718	206720	900
106764	206721	950
106719	206722	1000
106774	206723	1100
106775	206724	1200
106776	206725	1300
106765	206726	1400
106766	206727	1500
106767	206728	1600
106768	206729	1700
106777	206730	1800
106769	206731	1900
106778	206732	2000
166783	206737	2500
166794	206734	3000
166795	203738	4000
166796	203739	5000

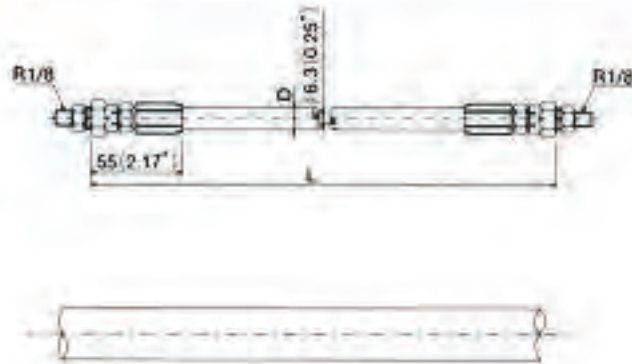
Tubing O.D.	φ4	φ6
Working pressure	2.9MPa(30kgf/cm ²)435psi	3.9MPa(40kgf/cm ²)580psi
Working temperature range	-20℃+90~℃(-4°F+194°F)	
Minimum bending radius	R40	R120
d1	φ4	φ6
d2	φ8	φ10
d3	φ10	φ13.5

Flexible hose

For moderate and high pressure



Dimensional drawing



Part Number

For moderate pressure and high pressure
(working temperature $-40^{\circ}\text{C} \sim +100^{\circ}\text{C} / -40^{\circ}\text{F} \sim +212^{\circ}\text{F}$)

Part Number	L(m/m)	Working Pressure		Minimum bending radius		D	
		10.3MPa (105kgf/cm ²) 1,520psi	34.2MPa (350kgf/cm ²) 5,075psi	R85	R105	φ13.5	φ15
250151	500	○		○		○	
250152	700	○		○		○	
250153	1000	○		○		○	
250154	1500	○		○		○	
250161	500		○		○		○
250162	700		○		○		○
250163	1000		○		○		○
250164	1500		○		○		○

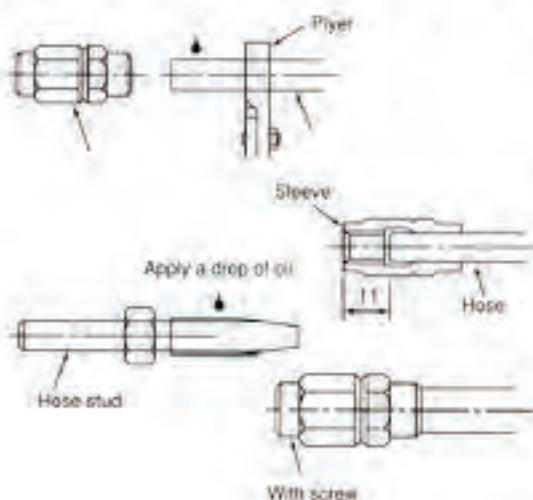
Flexible hose

For high pressure
 (working temperature $-30^{\circ}\text{C} \sim +80^{\circ}\text{C} / -22^{\circ}\text{F} \sim +176^{\circ}\text{F}$)

Part Number	Outer diameter		Inner diameter		Standard length		Working pressure		Burst Pressure		Minimum bending radius		Material	Color
	$\phi 8.4$	$\phi 6.0$	$\phi 4.2$	$\phi 3.0$	50m	100m	34.3MPa (350kgf/cm ²) 5,075psi	7.4MPa (600kgf/cm ²) 1,087psi	58.8MPa (600kgf/cm ²) 8,700psi	24.5MPa (250kgf/cm ²) 3,625psi	R35	R50		
403010	○		○		○		○		○		○		○	○
Mk0102		○		○		○		○		○		○	○	○

● Hose connections (for 403010)

Insert the hose sleeve (403001) into the hose. Then rotate counter-clockwise. Applying some oil on the hose surface will make it easier to handle. Stop when reaching the position 11mm away from the end. Then insert the hose stud by rotating clockwise until the hexagonal portion of the hose stud touches the hose sleeve.



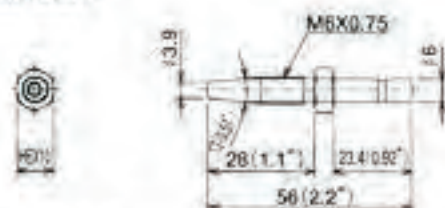
● Hose sleeve



Part Number

403001

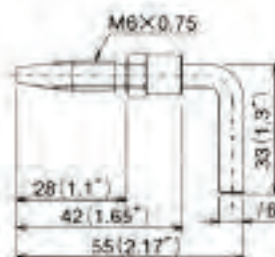
● Hose stud



Part Number

403002

● Hose stud elbow



Part Number

403003

Flexible hose

For high pressure

Dimensional drawing

- N3130 Series
- Soft, yet hard to break



Part Number

Part Number	Outer diameter	Innerr diameter		Max Operating pressure		Max Inpact pressure		Min Burst pressure		Min Bending pressure	Whight
	(mm)	(in)	(mm)	MPa	kgf/cm ²	MPa	kgf/cm ²	MPa	kgf/cm ²	(mm)	(g/m)
N3130-03	10.4	3/16	4.8	21.0	210	26.3	263	840	840	20	65
N3130-04	12.5	4/1	6.3	19.5	195	24.4	244	770	770	40	105
N3130-05	14.7	5/16	7.9	17.5	175	21.9	219	700	770	45	130
N3130-06	16.4	3/8	9.5	16.0	160	20.0	200	630	630	50	150
N3130-08	20.3	1/2	17.7	14.0	140	17.5	175	560	560	75	210
N3130-12	26.6	3/4	19.0	9.0	90	11.3	113	350	350	130	290
N3130-16	33.4	1	25.4	7.0	70	8.8	88	280	280	165	400

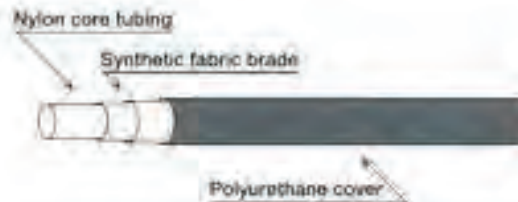
Flexible hose

For high pressure

Dimensional drawing

● 3130 Series

- Excellent oil -proof and chemical -proof characteristics.



Part Number

Part Number	Outer diameter		Innerr dirmeter		Max Operating pressure		Max Inpact pressure		Min Burst pressure		Min Bending pressure	Whight
	(mm)	(in)	(mm)	(in)	MPa	kgf/cm ²	MPa	kgf/cm ²	MPa	kgf/cm ²	(mm)	(g/m)
3130-02	8.3	1/8	3.6		20.0	200	25.0	250	72.0	720	15	45
3130-03	10.4	3/16	4.8		20.0	200	25.0	250	72.0	720	30	65
3130-04	12.4	1/4	6.3		20.0	200	25.0	250	72.0	720	40	105
3130-05	13.8	5/16	7.9		18.0	180	22.5	225	65.0	650	50	115
3130-06	16.1	3/8	9.5		18.0	180	22.5	225	65.0	650	60	150
3130-08	19.9	1/2	12.7		16.0	160	20.0	200	58.0	580	80	210
3130-12	26.2	3/4	19.0		10.0	160	12.5	125	36.0	360	160	290

Flexible hose

For high pressure

Dimensional drawing

● 3700 Series

- Excellent flexibility and stable performance under low temperature (-55°C).



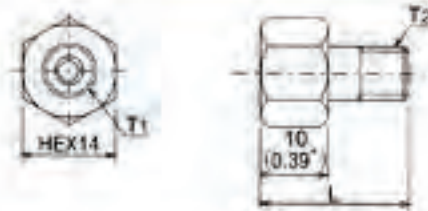
Part Number

Part Number	Outer diameter		Innerr diameter		Max Operating pressure		Max Impact pressure		Min Burst pressure		Min Bending pressure	Whight
	(mm)	(in)	(mm)	(in)	MPa	kgf/cm ²	MPa	kgf/cm ²	MPa	kgf/cm ²	(mm)	(g/m)
3003-03	10.4	3/16	4.8		34.0	340	24.5	425	100.0	1000	70	76
3000-04	12.5	1/4	6.3		30.0	300	37.5	375	90.0	900	75	98
3000-06	16.0	3/8	9.5		24.0	240	30.0	300	70.0	700	120	140
3000-08	19.8	1/2	12.7		20.0	200	25.0	250	60.0	600	160	199
3000-12	26.2	3/4	19.0		13.0	130	16.3	163	38.0	380	250	276
3000-16	33.0	1	25.4		10.0	100	12.5	125	30.0	300	300	366

Connectors



Dimensional drawing



Part Number

Straight connector

Part Number	L	T1	T2
106141	20(0.79")	Rc 1/8	R 1/8
186141	20(0.79")	1/8 NPT	1/8 NPT
106142	25(0.98")	Rc 1/8	R 1/8
186142	25(0.98")	1/8 NPT	1/8 NPT
Ⓞ 106143	30(1.18")	Rc 1/8	R 1/8
186143	30(1.18")	1/8 NPT	1/8 NPT
Ⓞ 106144	40(1.57")	Rc 1/8	R 1/8
Ⓞ 106145	50(1.97")	Rc 1/8	R 1/8
Ⓞ 106146	60(2.36")	Rc 1/8	R 1/8
Ⓞ 206141	20(0.79")	Rc 1/8	R 1/4

Dimensional drawing



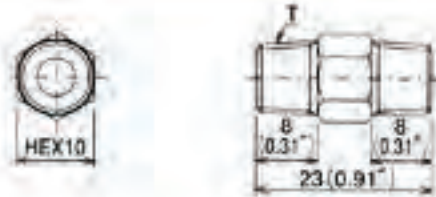
Part Number

Part Number

106147

Connectors

Dimensional drawing



Part Number

Part Number	T
106151	2-R1/8
186151	2-1/8NPT

Dimensional drawing



[PAGE TOP](#)

Part Number

Part Number
① 106154

Dimensional drawing

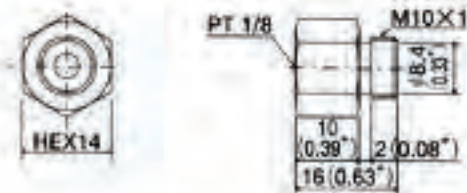


Part Number

Part Number	T1	T2
① 106174	Rc1/8	M8x1
106231	M8x1	M8x1
186231	5/16-24	5/16-24

Connectors

Dimensional drawing



Part Number

Part Number

⑩ 106177

Dimensional drawing

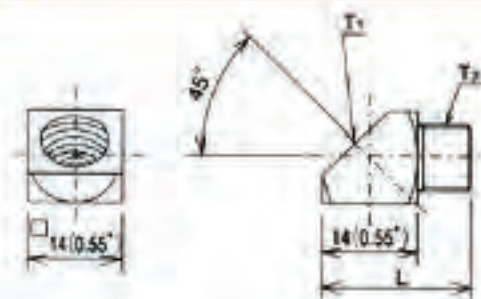


Part Number

Elbow connector

Part Number	L1	L2	L3	T1	T2
106101	22(0.87")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
186101	22(0.87")	14(0.55")	14(0.55")	1/8 NPT	1/8 NPT
106102	25(0.98")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
186102	25(0.98")	14(0.55")	14(0.55")	1/8 NPT	1/8 NPT
106103	30(1.18")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
106104	40(1.57")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
⑩ 106105	50(1.97")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
⑩ 106106	60(2.36")	14(0.55")	14(0.55")	Rc 1/8	R 1/8
⑩ 106107	20(0.79")	12(0.47")	12(0.47")	Rc 1/8	R 1/8

Dimensional drawing



Part Number

Part number	L	T1	T2
① 106121	22(0.87")	Rc 1/8	R 1/8
186121	22(0.87")	1/8 NPT	1/8 NPT
① 106122	25(0.98")	Rc 1/8	R 1/8
186122	25(0.98")	1/8 NPT	1/8 NPT
① 106123	30(1.18")	Rc 1/8	R 1/8
① 106124	40(1.57")	Rc 1/8	R 1/8
① 106125	50(1.97")	Rc 1/8	R 1/8
① 106126	60(2.36")	Rc 1/8	R 1/8

PAGE TOP

Dimensional drawing



Part Number

Part Number	L	T1	T2
① 106181	14(0.55")	R1/8	M6×1
920730	12(0.47")	1/2-28	1/2-28

Connectors

Dimensional drawing



Part Number

Part Number

① 106182

Dimensional drawing



Part Number

Part Number	L	T
① 106183	6(0.24")	M5×0.8
① 106184	6(0.24")	M6×0.75
① 106185	6(0.24")	M6×1
① 106189	6(0.24")	M7×1
① 106192	8(0.31")	M6×0.75
① 166039	14(0.55")	M6×0.75
186032	8.6(0.34")	1/4-28

Connectors

Dimensional drawing



Part Number

Part Number	T	d
① 106186	M6×1	5
① 106187	M6×1	6
① 106188	M6×1	7

Dimensional drawing



Part Number

Part Number	T1	T2
106161	2-R1/8	Rc1/8
186161	2-11/8 NPT	1/8 NPT

Dimensional drawing



Part Number

Part Number	T1	T2
106171	2-Rc 1/8	R 1/8
186171	2-1/8 NPT	1/8 NPT

Dimensional drawing



Part Number

Part Number

W619322

Adapters

Straight adapter



Dimensional drawing



Part Number

Part Number	Tubing O.D			L1	L1	T1	T2	B
	φ4	φ6	φ8					
106001	○			16(0.63")	8(0.31")	M8×1	R1/8	HEX10
186001	○			16(0.63")	8(0.31")	5/16-24	1/8NPT	HEX10
106002	○			20(0.79")	12(0.47")	M8×1	R1/8	HEX10
186002	○			20(0.79")	8(0.31")	5/16-24	1/8NPT	HEX10
①106003	○			25(0.98")	17(0.67")	M8×1	R1/8	HEX10
①106004	○			30(1.18")	22(0.87")	M8×1	R1/8	HEX10
①106005	○			35(1.38")	27(1.06")	M8×1	R1/8	HEX10
①166004	○			22(0.87")	10(0.40")	M8×1	1/4-28UNF	HEX10
166142				20(0.79")	10(0.40")	1/8NPT	R1/8	HEX14
206001		○		20(0.79")	8(0.31")	M10×1	R1/8	HEX12
①207001			○	25(0.98")	10(0.40")	M14×1.5	R1/4	HEX17

Adapters

Dimensional drawing



Part Number

PartNumber	Tubing O.D	T1	T2
106011	φ4	M8×1	R1/8
186011	φ4	5/16-24	1/8NPT

Dimensional drawing



Part Number

PartNumber	Tubing O.D
106061	φ4

Dimensional drawing



Part Number

PartNumber	Tubing O.D&φ4	L1	L2	T
① 106062	○	20(0.79")	4(0.16")	M6□×1
① 106064	○	30(1.18")	14(0.55")	M6×0.75
① 106065	○	23(0.91")	7(0.28")	M6×0.75

Adapters

Dimensional drawing



Part Number

PartNumber	Tubing O.D.Φ	T1	T2
⑩106081	φ4	R1/8	M8□×1
186081	φ4	1/8NPT	5/16-24

Dimensional drawing



Part Number

Part Number	Tubing O.D.		T1	T2	B
	φ4	φ6			
⑩106082	○		M8×1	M5□×0.8	HEX10
⑩106083	○		M8×1	M5□×0.9	HEX10
⑩106084	○		M8×1	M6×1	HEX10
⑩106085	○		M8×1	M6×0.75	HEX10
⑩106087	○		M8×1	M7×1	HEX10
⑩106088	○		M8×1	M8×1	HEX10
⑩106089	○		M8×1	M10×1	HEX12
⑩106094		○	M10×1	M6×1	HEX12
⑩106099	○		M8×1	1/4-28UNF	HEX10
⑩106353		○	M10×1	1/4-28UNF	HEX12
166144	○		R1/8	M6×1	HEX12
010014	○		5/16-24	1/4-28	HEX3/8
920749	○		R1/8	1/4-28	HEX12

Adapters

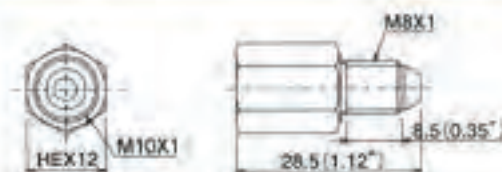
Dimensional drawing



Part Number

Part Number	Tubing O.D.		T1	T2	L
	φ4	φ6			
① 106091	○		M8×1	R1/4	18(0.71")
① 206081		○	M10×1	R1/4	20(0.79")

Dimensional drawing



Part Number

Part Number	Tubing O.D.
① 106095	φ6

Dimensional drawing



Part Number

Part Number	Tubing O.D.		T	D
	φ6			
① 106096	○		M8×1	φ5
① 106097	○		M8×1	φ6.2
106098	○		M8×1	φ6.85

Adapters

Dimensional drawing



Part Number

Part Number	Tubing O.D.		T	D
		$\phi 6$		
106096	ϕ	ϕ	M8×1	$\phi 5$
106097	ϕ	ϕ	M8×1	$\phi 6.2$
106098	ϕ	ϕ	M8×1	$\phi 6.85$

Dimensional drawing



Part Number

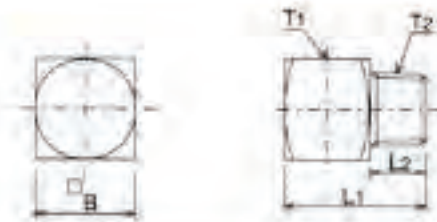
Part Number	Tubing O.D.		T	D	L
		$\phi 4$			
206012	ϕ	ϕ	M8×1	$\phi 3$	14 (0.55")
206011	ϕ	ϕ	M10×1	$\phi 4$	16 (0.63")

Adapters

Elbow adaptert-adapter



Dimensional drawing

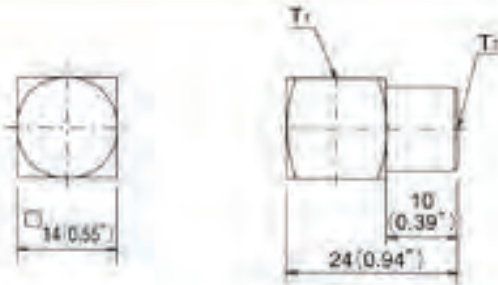


Part Number

Part Number	Tubing O.D.		L1	L2	T1	T2	B
	φ4	φ6					
106021	○		20(0.79")	8(0.31")	M8×1	R1/8	14
106022	○		25(0.98")	13(0.51")	M8×1	R1/8	14
① 106023	○		30(1.18")	18(0.71")	M8×1	R1/8	14
① 106024	○		40(1.57")	28(1.10")	M8×1	R1/8	14
① 106025	○		50(1.97")	38(1.50")	M8×1	R1/8	14
① 106026	○		60(2.36")	48(1.89")	M8×1	R1/8	14
186021	○		20(0.79")	8(0.31")	5/16-24	1/8NPT	14
186022	○		25(0.98")	13(0.51")	5/16-24	1/8NPT	14
① 206091	○		25(0.98")	11(0.43")	M8×1	R1/4	14
206092		○	22(0.87")	8(0.31")	M10×1	R1/8	16

Adapters

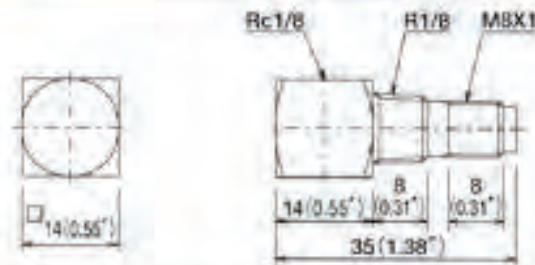
Dimensional drawing



Part Number

Part Number	Tubing O.D.	T1	T2
106031	$\phi 4$	Rc1/8	M8x1
186031	$\phi 4$	1/8NPT	5/16-24UNF

Dimensional drawing

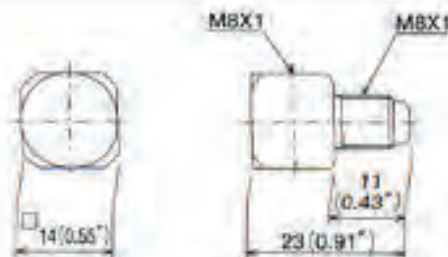


Part Number

Part Number	Tubing O.D.
106071	$\phi 4$

Note: Call for other dimensions.

Dimensional drawing



Part Number

Part Number	Tubing O.D.
106028	$\phi 4$

Adapters

Dimensional drawing

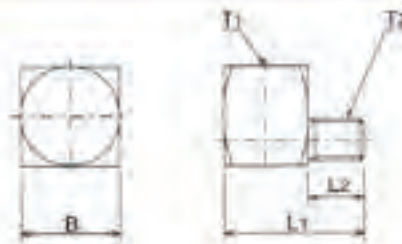


Part Number

Part Number	Tubing O.D.
106029	φ4

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Dimensional drawing

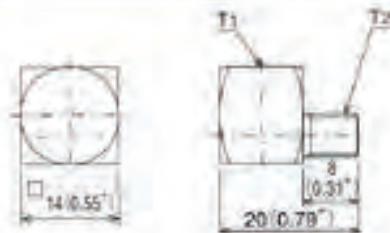


Part Number

Part Number	Material	L1	L2	T1	T2	B
① 106074	SS330B	20(0.79")	8(0.31")	M8×1	M6×1	14
① 166036	SUM-21	20(0.79")	8(0.31")	M8×1	1/4-28UNF	14
① 106033	C3604	20(0.79")	8(0.31")	M8×1	M8×1.25	14
① 166035	C3604	22(0.87")	8(0.31")	M10×1	M10×1	16
① 166040	C3604	22(0.87")	8(0.31")	M10×1	1/4-28UNF	16

Adapters

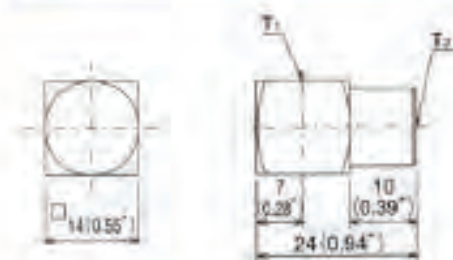
Dimensional drawing



Part Number

Part Number	Tubing O.D.	T1	T2
106075	○	M8×1	M6×0.75
106076	○	M8×1	M6×1

Dimensional drawing



Part Number

Part Number	T1	T2
Ⓢ 106041	2-Rc1/8	M8×1
186041	2-1/8NPT	5/16-24

Dimensional drawing



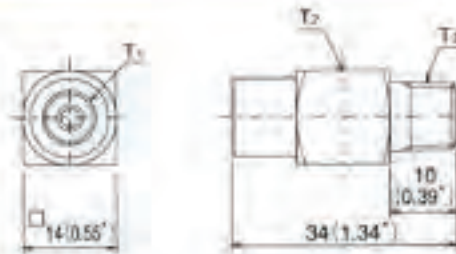
Part Number

Part Number

Ⓢ 106049

Adapters

Dimensional drawing



Part Number

Part Number	T1	T2	T3
106051	M8×1	Rc1/8	Rc1/8
186051	5/16-24UNF	1/8NPT	1/8NPT

Push to Connect Fittings

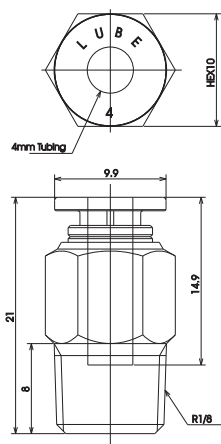


Push-to-connect Fitting (Straight)

Model	Part Number	Tubing O.D. (φ)	L1(φ)	L2(φ)	B
KBC4-01	209503	4mm	23	21	10
KBC6-01	209513	6mm	23	21	10

Material: The tubing that can be used is nylon tubing.

Drawing

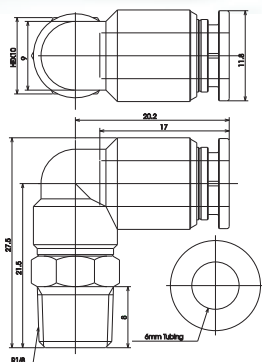


Push-to-connect Fitting (Elbow)

Model	Part Number	Tubing O.D. (φ)	B
KBL4-01	209508	4mm	11.8
KBL6-01	209518	6mm	11.8

Material: The tubing that can be used is nylon tubing.

Drawing



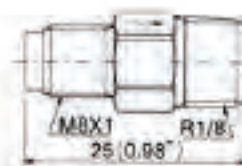
☛ Check valves/Swivel elbow/Banjo elbow



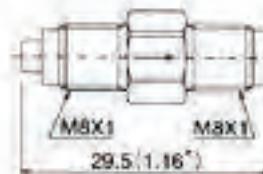
Dimensional drawing

● Check valve

109407



109415



109416



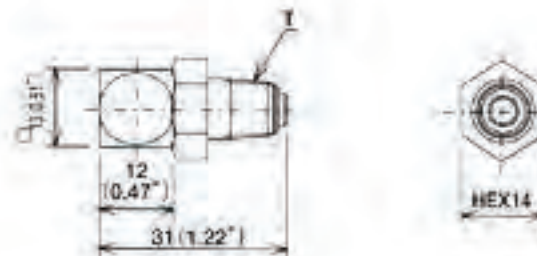
Part Number

Part Number	Model	Operating puresure
109407	HSA	0.034MPa (0.35kgf/cm ²)
109415	HJB	0.034MPa (0.35kgf/cm ²)
109416	HTU	0.016MPa (0.16kgf/cm ²)

Check valves/Swivel elbow/Banjo elbow

Dimensional drawing

● Swivel elbow



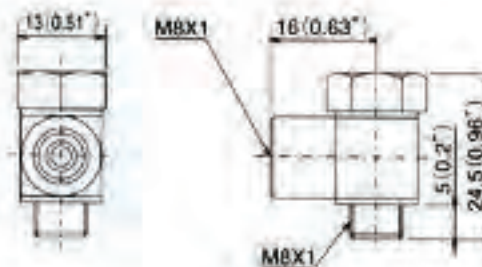
Part Number

Part Number	Model	Operating puessure
109412	100rpm/MAX	R 1/8
189402	100rpm/MAX	1/8NPT

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Dimensional drawing

● Banjo elbow



Part Number

Part Number

106027

Couplers/Unions

Dimensional drawing

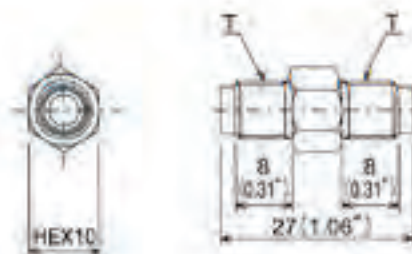


Part Number

Part Number	Tubing O.D.	T1	T1	L	B
106201	$\varphi 4 \times \varphi 4$	M8×1.0	M8×1.0	25(0.98")	HEX10
186201	$\varphi 4$	5/16-24	5/16-24	25(0.98")	HEX10
106202	$\varphi 4 \times \varphi 6$	M8×1.0	M8×1.0	27(1.06")	HEX12
① 106291	$\varphi 4$	M8×1.0	Rc 1/8	25(0.98")	HEX14
① 106292	$\varphi 6 \times \varphi 6$	M10×1.0	M10×1.0	29(1.14")	HEX14
① 106293	$\varphi 6$	M10×1.0	Rc 1/8	25(0.98")	HEX14
① 106294	-	Rc 1/8	Rc 1/8	25(0.98")	HEX14
① 207201	$\varphi 8 \times \varphi 8$	M14×1.5	M14×1.5	40(1.57")	HEX17
① 207202	-	Rc 3/8	Rc 1/8	25(0.98")	HEX21

Material:C3604

Dimensional drawing



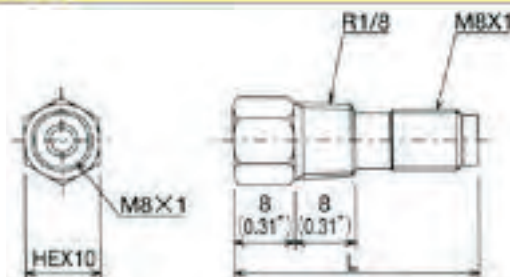
Part Number

Part Number	Tubing O.D.	T
106211	$\varphi 4$	2-M8×1
186211	5/32"	2-5-16-24 UNF

Material:C3604

Couplers/Unions

Dimensional drawing

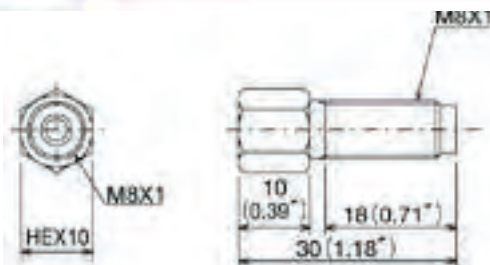


Part Number

Part Number	Tubing O.D.	L
106221	$\varnothing 4$	32(1.26")
① 106222	$\varnothing 4$	40(1.57")

Material:C3604

Dimensional drawing

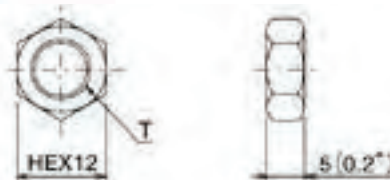


Part Number

Part Number	Tubing O.D.
106231	$\varnothing 4$

Material:C3604

Dimensional drawing



Part Number

Part Number	T
106232	M8x1
186234	5/16-24 UNF

Material:SS400

Drive bushing/Barb fittings



Dimensional drawing



Part Number

Part Number	Tubing O.D.	d1	d2	B
106257	φ4	φ4.7	φ4.5	6
106256	φ4	φ6	φ6	8
106258	φ4	φ7	φ6.8	8

Dimensional drawing



Part Number

Straight tube end

Part Number	Specification	T	L	B
106931	Threaded type	M4×0.75	16(0.63")	6
106933		M5×0.8	16(0.63")	6
① 106934		M5×0.9	16(0.63")	6
① 106935		M6×0.75	16(0.63")	8
106936		M6×1	16(0.63")	8
① 106937		M8×1.25	16(0.63")	9

Drive bushing/Barb fittings



Dimensional drawing

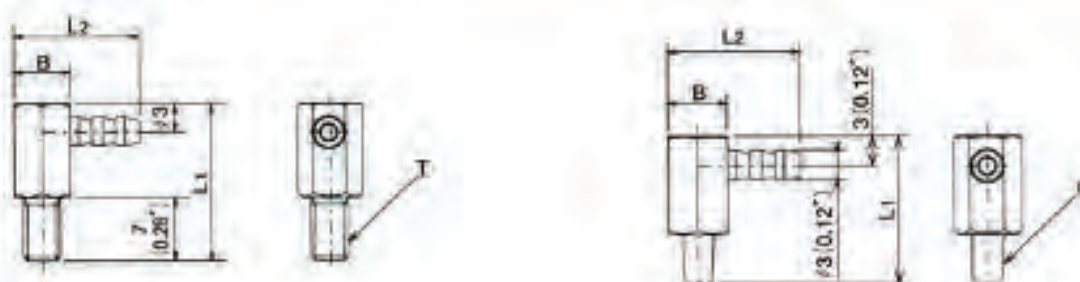


Part Number	Specification	d	L	B
106921	Driving type	φ3	16(0.63")	6
106923		φ4	16(0.63")	6
106924		φ4.5	16(0.63")	7
106925		φ5	16(0.63")	6
① 106926		φ5.5	16(0.63")	8
106927		φ6	16(0.63")	7
① 106928		φ7	16(0.63")	9
① 106929		φ8	16(0.63")	10
① 106930		φ6.5	16(0.63")	8
106931		0.125	16(0.63")	6

Drive bushing/Barb fittings



Dimensional drawing



Part Number

Part Number	Specification	T	L1	L2	B
106911	Threaded type	M4	17(0.98")	13.5(0.53")	6
106912		M4.5	17(0.98")	13.5(0.53")	6
106913		M5×0.8	17(0.98")	15(0.59")	8
106914		M5×0.9	17(0.98")	13.5(0.53")	6
106915		M6×0.75	17(0.98")	15(0.59")	8
106916		M6	17(0.98")	15(0.59")	8
106917		M8	17(0.98")	16(0.63")	9
106954		M4×0.75	15(0.59")	13(0.51")	6
106955		M4.5×0.7	15(0.59")	13(0.51")	6
106956		M5×0.8	15(0.59")	15(0.59")	8

Part Number	Specification	d	L1	L2	B
106901	Driving type	φ3	15(0.59")	13.5(0.53")	6
106902		φ3.5	15(0.59")	13.5(0.53")	6
① 106903		φ4	15(0.59")	13.5(0.53")	6
① 106904		φ4.5	15(0.59")	13.5(0.53")	6
① 106905		φ5	14(0.55")	13.5(0.53")	6
① 106907		φ6	15(0.59")	15(0.59")	8
① 106908		φ3	15(0.59")	15(0.59")	10
① 106909		φ8	14(0.55")	17(0.98")	8
106910		φ6.5	15(0.59")	15(0.59")	8

Replacement parts/Brush



Dimensional drawing

● Inlet check valve

529008



529009



539001

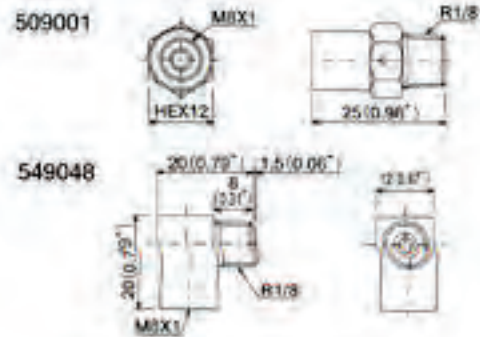


Part Number

Part Number	Pump
529008	MMX-II for 2.5cc
Part Number	Pump
529009	MMX-II for 5.5cc, for L-8, L-20
Part Number	Pump
539001	For EX

Dimensional drawing

● Outlet check valve



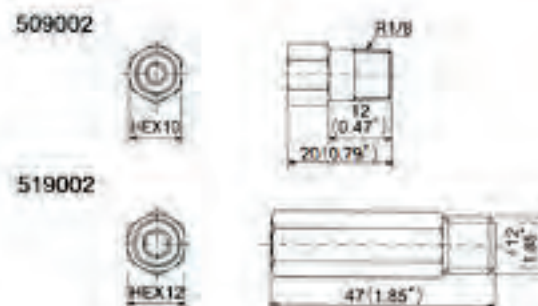
Part Number

Part Number	Purap
549001	For MMX-II, EX, L-8, L-20
Part Number	Pump
549048	For MLZ, LK

PAGE TOP

Dimensional drawing

● Relief valve



Replacement parts/Brush

Dimensional drawing

● Relief valve

509002



519002

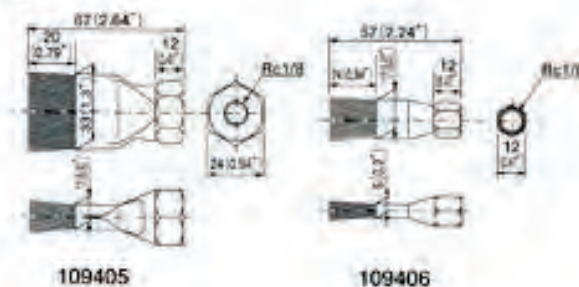


Part Number

Part Number	Pump
509002	For AM, ACM, 0.8MPaADM, AMS (8kgf/cm ²)
Part Number	Pump
519002	For AMI-300, 100S, 200S, 2.5MPa300S, 1000S (25kgf/cm ²)
519003	For AMI-300□0.5MPa (5kgf/cm ²)

Dimensional drawing

● Brush



Part Number

Part Number	109405
Part Number	109406

Fill Port / Strainer/ Suction Filter Table

	Model	Code No.	Target Products
Refill Port	OC-4	529409	AMZ-III, AMZ100S, AMO-150S-III, AMO-II-150S, MMXL-III, MMX-II, AMR-III-150
	OC-3	529432	MLZ, L5
	OC-2	549005	EX, L20, ACM-II, AM, ADM
	OC-1	549006	L3, L8
Strainer	OS-1	521037	AMZ-III, AMZ100S, AMO-150S-III, AMO-II-150S, MMXL-II, MMX-II
Suction Filter	SF-11	510323	AMZ-III, AMZ100S, AMO-150S-III, AMO-II-150S, AMR-III-150
	SF-08	489008	AMI-300S, AMI-1000S, AMI-300, AMI-1000
	SF-07	489007	MLZ
	SF-10	489010	MMXL-III
	SF-A	500324	AMS
	SF-13	489013	MMX-II, L8
	SF-12	489012	ACM-II
	SF-01	489001	AM, ADM
	SF-05	489005	L20, EX
	SF-L3	540727	L3
	SF-L5	540562	L5
	SF-LK	540562	LK
Inlet Check Valve	IC-2.5	529008	MMX-II(2.5ml)
	IC-5.5	529009	MMX-II(5.5ml),L-8, L-20
	IC-EX	539001	MLZ, LK
Outlet Check Valve	OC-1	509001	MMX-II, EX, L-8, L-20
	OS-2	549048	MLZ, LK
Relief Valve	RB-0.8	509002	AM, ACM, ADM, AMS <0.8MPa>
	RB-2.5	519002	AMI-100S,200S,300S,1000S <2.5MPa>
	RB-0.5	519003	AMI-300 <0.5MPa>

Centralized lubrication system planning

(1) System planning sequence

Objective of lubrication : Decrease friction, cooling and extend bearing life.

- **Locate all wear surfaces that need to be lubricated :** bearings, slides, cams, gears, chains etc. Take into consideration RPM, load, ambient temperature and nearby hazard.
- **Selecting lubricant :** Determine frequency required (min. -hrs. -days). Select lubricant oil or grease, and note viscosity
- **Selecting Desired Delivery Method :** Automatic or manual. Intermittent or continuous. Single Line Resistance, Positive Displacement Injector, Series Progressive.
- **Calculate Lubricant Requirements :** For each lubrication point, calculate the necessary requirement of lubricant in cubic centimeters per hour. Then multiply or divide by desired frequency to determine necessary requirement per interval cycle. Add all the requirements together to get the total system requirement.
- **Select Distributor :** Based on the desired delivery method, choose the correct distributor for that method that will deliver the amount of lubricant required per interval period.
- **Select Pump and Tank :** Based on the desired delivery method and the system total requirements, choose a pump that meets those requirements. Take into consideration it is not recommended to use more than 80% of the pump output. Choose a tank that will meet the desired refilling interval.
- **Select any Protection and Monitoring Device :** Based on the type of system there are different monitoring devices that could be used if desired, flow sensor, pressure switch, cycle switch, low level switch or visual indication.
- **Select Controlling Method :** Determine if an external system controller will be required and select controls that will not only meet the system requirements, but also the chosen monitoring device if necessary.
- **System Layout :** Arrange nearby lubrication points into groups if desired. Based on the particular distributor chosen, arrange the distributors into same groups. Based on the system delivery method and necessary main and branch tubing, engineer the tubing layout and distributor locations.
- **Select Necessary Tubing Parts :** After system layout is complete, choose the correct amount of desired fittings, adapters, compression hardware, tubing etc. that will be required to plumb the system.

(2) Calculating oil requirements

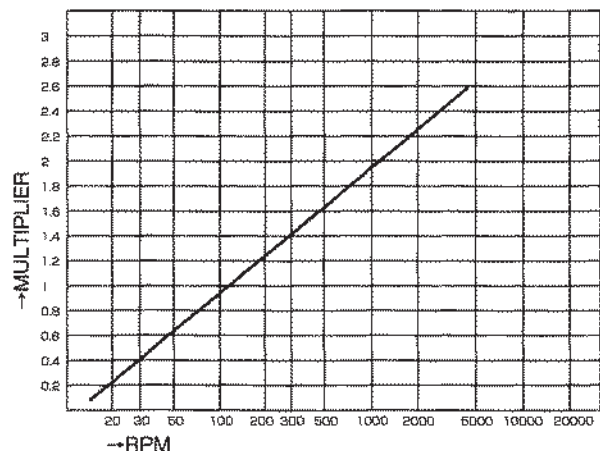
The amount of oil that is required for lubrication point is calculated by the following formulas and are based on experience and actual testing.

The necessary requirement is calculated in cubic centimeters per hour. These formulas are based on an average of 120 RPM. In general, the requirement should be doubled for every ten fold speed increase. There have been many calculating formulas published before that use surface smoothness, different operating conditions, RPM, load, ambient temperature, oil type, hazardous conditions, sealing conditions etc. Thus, the formulas below for calculating the oil requirements are not absolute. They are rather a benchmark, and based on the actual operating conditions should be adjusted for each particular application.

Oil requirements calculation formulas

AF. Anti-friction bearing (Ball bearing, roller bearing, needle bearing) Oil volume $Q(cc/h)$ $=0.04 \times \text{diameter} \times \text{rows}$	BW. Ball bearing way Oil volume $Q(cc/h)=0.012 \times \text{length} \times \text{rows}$
P. Plain bearing Oil volume $Q(cc/h)=0.023 \times \text{shaft diameter} \times \text{bearing length}$	CA. Cam Oil volume $Q(cc/h)=0.0017 \times \text{Contacting circumference} \times \text{width}$
FW. Flat slide a. Oil volume $Q(cc/h)=0.0017 \times \text{length} \times \text{width}(\text{horizontal slide})$ b. Oil volume $Q(cc/h)=0.006 \times \text{length} \times \text{width}(\text{vertical slide})$	G. Gear Oil volume $Q(cc/h)=0.013 \times \text{pitch circle diameter} \times \text{width of gear}$
CW. Cylinder slide Oil volume $Q(cc/h)=0.023 \times \text{diameter} \times \text{length}$	CH. Chain Oil volume $Q(cc/h)=0.006 \times \text{length}$

The relationship between rpm and multiplier



Oil system

Positive Displacement Injector(PDI) - (AMO-System)

(1) System Overview

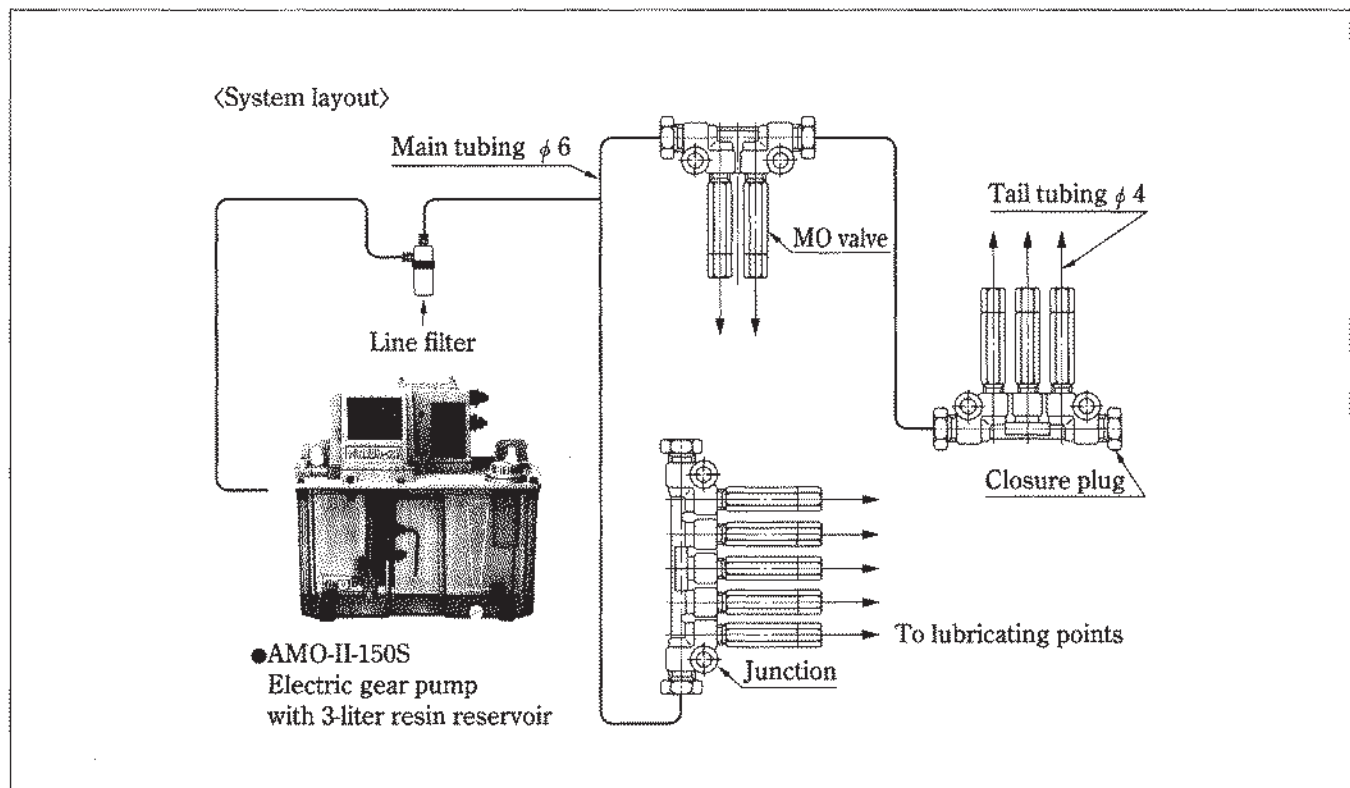
The AMO centralized lubrication system will deliver precise amounts of oil to all of your lubrication points, and have the flexibility to be adapted to just about any applications imaginable. The AMO pumps are electrically operated gear pumps, and offer many choices of controller options. The integrity of these system stems from the metering device the MO-Valve injector. The MO-Valve injector is a precisely calibrated piston distributor that will deliver an exact amount of oil upon main line pressure rise from the AMO pump. The MO-Valve re-set and re-load when main line pressure returns to zero. The AMO pumps come standard with an internal pressure relief valve and a low lubricant switch. Normally they also have an internal pressure switch that will monitor the main line for breakage. The AMO pumps also have an option for a

Lubrication system	Positive displacement injector system	
Tubing	Single line (main tubing 6mm, tail tubing 4mm)	
Lubricant	Oil (68~1800cSt)	
Pump	Type	Motor driven gear pump AMO-II-150S
	Discharge volume	150/180cc/min (50/60Hz)
Reservoir	1.8ℓ, 3ℓ : Resin / 3ℓ, 4ℓ, 8ℓ : Metal	
Controller	Built-in (discharge time/interval timer), with indication lamps	
Valve	MO valve	

precision gear assembly that will allow the use of lubricants light as 22 Cst.

Characteristics:

1. The AMO pumps can be with or without controller which allows the flexibility of just about any time or count interval required.
2. The AMO pumps are motor driven gear pumps that are preset to deliver 150 to 180 cc/min. and create 285 psi of main line pressure.
3. The AMO pumps have a 180 micron suction filter, but recommend an additional in line filter for added security against contamination.
4. The MO-Valve injectors are junction mounted distributors that can be arranged in just about any configurations imaginable.
5. The MO-Valves have 9 different discharge volumes to select from to meet the lubrication points actual cycle requirement.
6. Because the AMO systems have the flexibility of individual distributor junction assemblies, one main line feeding tube, an optional pressure switch, makes the engineering of the system layout, the installation of the system as easy as possible. As well as monitoring as much of the system for main line breakage as possible.



(2) System planning sequence

■ To be considered

1. **Total length of main tubing (L) ... m**
The total length of the steel tubing and flexible hose in the main tubing.
2. **The distance to the furthest valve (l) ... m**
The length of the main tubing to the furthest valve from the pump.
3. **Total output of all valves (V) ... cc**
The total oil output of all valves.
4. **Maximum operating viscosity (v) ... cSt**
The oil viscosity at the lowest temperature of the working environment. (Not to exceed 1800 cst.)

■ Designing the system

(How to complete Data Sheet)

1. Fill in the column 18~21.
2. Calculate required Oil Volume using the formula provided. Put the results in column 22.
3. Pick the smallest oil requirement from column 22, using it as the divider, calculate the relative ratios to all other oil requirements. Put the results in column 23.
4. Select valves with the least amount of output as possible and assign the valve to each point. Valve output should be in accordance with the ratios in column 23. Put the results in column 24. Calculate the total and put the result in section 7.
5. Using the valve output in column 24 as the divider, divide the oil requirements in column 22 and put the results in column 25.
6. Select the largest value from column 25, using the following formula, calculate the interval time for 1 cycle. Put the result in column 26.

$$T = \frac{v \times 60}{Q}$$

T = I interval time of cycle (min)
 V = Discharge volume of valve (cc/shot)
 Q = Oil requirement (cc/h)

7. Pick the largest value in column 25 and multiply by the values in column 24 to get the actual oil output per hour. Put the results in column 27.
8. **Select System Specifications**
Put the customer information in column 1 - 8 in the System Specification Section.
9. **Select Lubrication Pump**
Fill in specifications of the Lubrication Pump in section 17.

10. Based on the working viscosity in section 2 and the main line tubing length in section 6, use the table 1 to figure out pump discharge volume and put the result in section 9.
11. Use the following formula to calculate the valve operation time based on the data of total discharge volume of valve in section 7 and Pump Discharge Volume When the Valve in Operation in section 9 and put the result in section 10.

$$T' = \frac{V \times 78}{Q'}$$

T' = Operating time of valve (sec)
 V = Total discharge volume of valve (cc)
 Q' = Pump discharge volume when the valve in operation (cc/min)

12. Use table 2 to establish the time to reach the maximum pressure.
13. Use the Valve Operation Time in section 10 and the Pressure Rise Time in section 11 to get the Minimum Discharge Time of the pump and put the result in section 12.
14. Establish the pressure relief time by using the table 3 and put the result in section 13.
15. Set the Valve Reset time as 1.5 second according to the valve specification.
16. Calculate the pump minimum interval time from the Pressure Relief Time in section 13 and the Valve Reset Time in section 14. Put the result in section 15
17. Calculate the Minimum Lubrication Cycle from the Pump Minimum Discharge Time in section 12 and the Minimum Interval Time in section 15. Put the result in section 16.
18. If the Minimum Lubrication Cycle in section 16 is longer than the lubrication cycle, the system would lose its integrity. Then the number of lubrication points should be reduced or adjust the Total Oil Discharge Volume of Valves in section 7.

LUBRICATION SYSTEM DATA SHEET (AMO-SYSTEM)

Name of Company
Add.
Section in charge
Person in charge

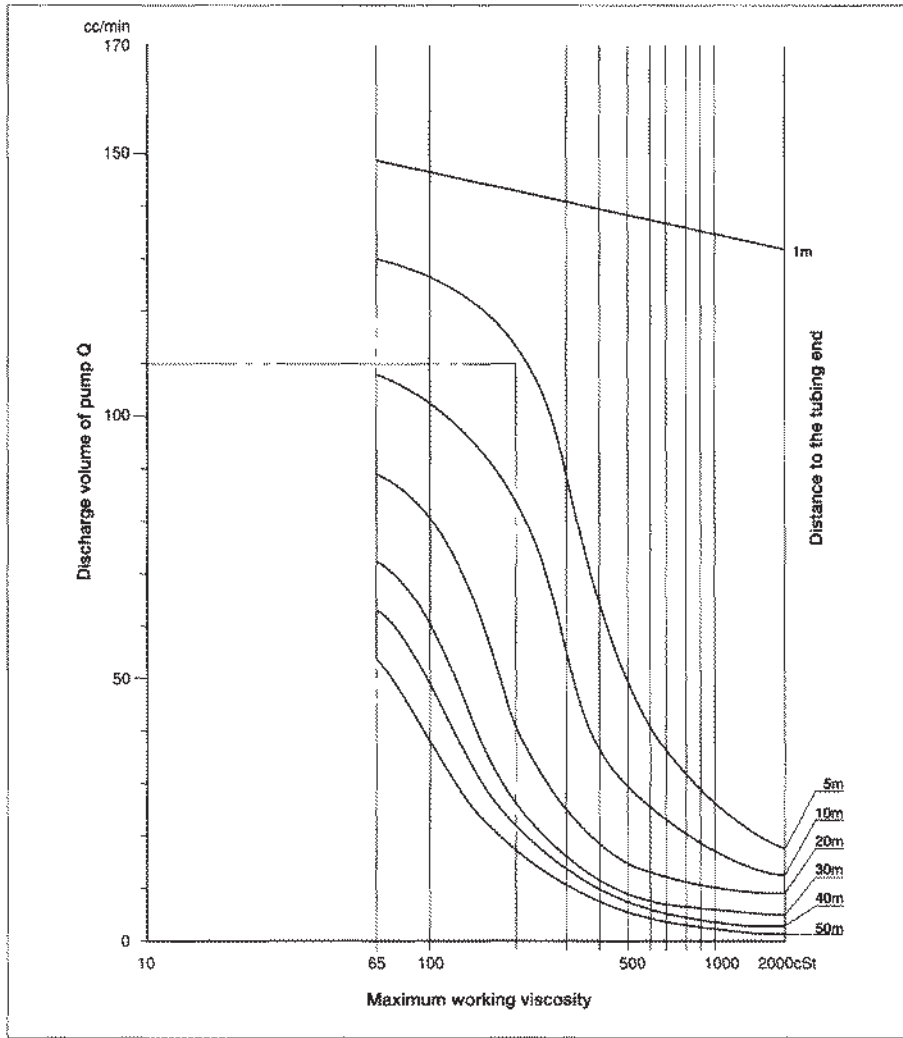
Machine names
Machine model

Name of sales office
Date
Quote No.

System specifications			System planning						
1	Working oil	℃ ~ ℃	9	Pump discharge volume when valve operating	① cc/min	14	Reset time of valve	⑩ 1.5 sec	
2	Maximum working viscosity	cSt	10	Valve operating time	② sec	15	Minimum interval time of pump	⑪ = ② + ⑩ sec	
3	Total length of tubing	L m	11	Pressure rise time	Steel(copper) tubing	③ sec	16	Minimum lubrication cycle time	⑫ = ③ + ④ sec
4	Total length of steel(copper) tubing	L' m			Flexible hose	④ sec			
5	Total length of flexible hose	L'' m			System	⑤ = ③ + ④ sec			
6	Distance to the furthest	ℓ m	12	Minimum discharge time of pump	⑥ = ② + ⑤ sec	17	Lubricating pump	AMO-150S	
7	Total oil discharge volume of valves	V cc	13	Pressure relief time	Steel(copper) tubing		⑦ sec	Motor	φ VAC Hz
8	Maximum discharge volume of valve	Y' cc			Flexible hose		⑧ sec	Condenser	μF
					System		⑨ = ⑦ + ⑧ sec	Reservoir	: 1.8 , 3 ℓ
						Controller	Yes/No		

Calculation of required oil volume				Calculating value							
Lubrication points	Abbreviated name	Coefficient	Dimension	Width	RPM or stroke (stroke/min)	Oil requirement (cc/h)	Ratio	Valve discharge volume (cc/shot)	Number of discharge	Lubricating cycle time(min)	Actual oil volume
Antifriction(ball,roller,needle) bearing	A F	0.04	Bearing diameter	Row number							
Plain bearing (metal)	P	0.023	Diameter	Length							
Flat slide way	F W	$\frac{0.0017}{0.006}$	Width	Length							
Cylinder slide way	C W	0.023	Diameter	Length							
Ball roller bearing slide way	B W	0.012	Slide direction length	Row number							
Gear	G	0.046	Pitch diameter	Gear							
Cam	C A	0.013	Contacting circumference	Width							
Chain	C H	0.008	Length	Width							
Item	Name of lubricating parts	18	19	20	21	22	23	24	25	26	27
Total						cc	Total			cc/h	

● Pump discharge volume when valve in operation (Table 1)



● Pressure rise time (Table 2)
(0~relief pressure...sec)

Pump Main tubing Total length(m)	AMO-150S	
	Steel tubing	Flexible hose
2	3.5	6
5	4.5	7.5
10	6	10.5
15	7.5	13.5
20	9	16.5
25	10.5	
30	12	
35	13.5	
40	15	
45	16.5	
50	18	

● Pressure rise time (Table 3)
(0~relief pressure...sec)

Total length(m)	Each pump common	
	Steel tubing	Flexible hose
2	5.5	5.5
5	5.5	6
10	6	7
15	6.5	7.5
20	7	8.5
25	7.5	9
30	8	10
35	8.5	
40	9	
45	9.5	
50	10	

Safety and trouble shooting

● For oil

Pump not discharging oil

- Low oil level in reservoir — add currently used oil
- Clogged suction filter — clean or change oil filter and clean reservoir
- Check for incorrect oil — if not correct, purge complete system, clean reservoir and fill with correct oil
- Motor turns in wrong direction — check motor wiring
- Damaged tubing within the pump — fix or replace
- By-pass valve out of adjustment — adjust by-pass valve
- Check inlet and outlet check valve — disassemble and clean
- Incomplete operation of handle (hand pump) — operate the pump handle to the end of the stroke

No pressure increase in the main line

- Ball seat of relief valve is clogged — clean relief valve
- Air in tubing — check for leaks, open system at furthest point and run pump to remove air
- Improper selection of control unit or flow unit — check manufacturers recommendation and replace with correct unit
- Improper pressure setting (gear pump) — adjust by-pass setting
- Damaged "O" ring on the piston (piston pump) — replace
- Oil leaking from junction — tighten fitting properly or replace tube fitting

Air in system

- Oil level in the reservoir is too low — fill with correct oil and follow above procedure for removing air
- Damaged tubing — replace damaged tubing

No oil passing thru flow or control unit

- Check flow direction on hex of flow or control unit — if incorrect, replace with correct unit
- Check for clogged unit — replace unit

The pump is not running, but light is on (if equipped)

- Motor is wired wrong — check motor wiring
- Circuit protector is in off position — press reset button

Trouble indication light is on (if equipped)

- Discharge time is set too short, pump is not reaching proper pressure — check time setting
- The oil level switched because of low oil level — fill reservoir with correct oil

Reservoir has proper oil level, but oil level warning is on

- Mistake on A, B contacts of oil level switch — consult with us

Cannot turn off trouble light (if equipped)

- Reset button has not been pressed — press the reset button
- Oil has not been added to reservoir — fill reservoir with correct oil
- Pump did not reach the specified pressure — consult with us