



Model Nos.  
N° de modèle  
Modellnummern  
Modelo No.  
Modello No.

**07534-04**  
**07534-08**  
**07535-04**  
**07535-08**  
**07536-02**  
**07536-04**

OPERATING MANUAL:

**MASTERflex® L/S®**  
**Multichannel**  
**Pump Head**

pages 1-8

NOTICE D'UTILISATION:

**MASTERflex® L/S®**  
**Tête de pompe**  
**multicanal**

pages F1-F8

BEDIENUNGSANLEITUNG:

**MASTERflex® L/S®**  
**Mehrkanal-**  
**Pumpenkopf**

Seiten D1-D8

MANUAL DE OPERACIÓN:

**MASTERflex® L/S®**  
**Cabezal de bombeo**  
**de múltiples canales**

páginas E1-E8

MANUALE DI ISTRUZIONI:

**MASTERflex® L/S®**  
**Testa pompante**  
**multicanale**

pagine T1-T8



**Cole-Parmer Instrument Co.**

625 E. Bunker Court, Vernon Hills, Illinois U.S.A. 60061-1844 • 800-MASTERFLEX (627-8373) • (847) 247-2929 (fax)  
www.masterflex.com • e-mail: techinfo@coleparmer.com

**Barnant**  
**Company**

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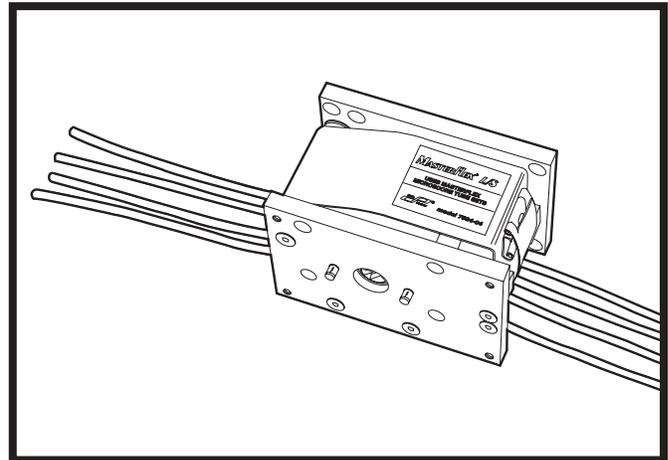
28W092 Commercial Ave., Barrington, Illinois U.S.A. 60010-2392 • (847) 381-7050 • (847) 381-7053 (fax)  
www.barnant.com • e-mail: barnant@barnant.com



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Model 07534-04, 07535-04, 07536-02



Model 07534-08, 07535-08, 07536-04

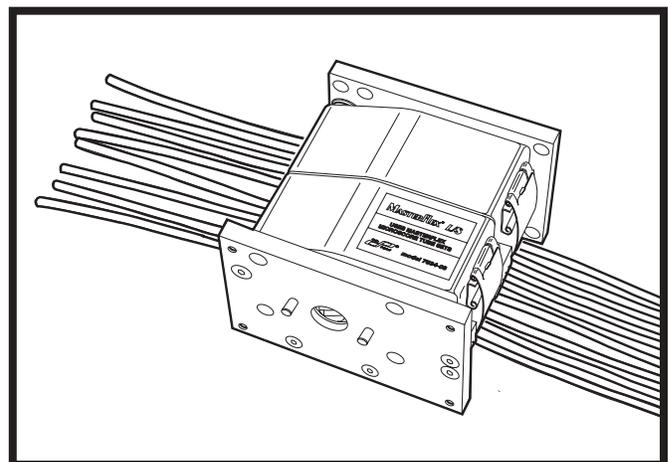


Figure 1, Pump Heads

## SAFETY PRECAUTIONS

**WARNING:** Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.



Turn off drive before removing or installing tubing. Safety guard is provided to minimize risk of fingers getting caught between roller mechanism and the base of the module. However, be safe—keep your fingers away from these areas.

**CAUTION:** Use only tubing sets listed in Appendix B. Use of other tubing could cause malfunction or damage to the pump.



## WARNING: PRODUCT USE LIMITATION

*These products are not designed for, or intended for use in, patient-connected applications, including, but not limited to, medical and dental use and, accordingly, have not been submitted for FDA approval.*

PharMed—Reg TM Saint-Gobain Performance Plastics

Santoprene—Reg TM Monsanto Chemical Co

Tygon—Reg TM Saint-Gobain Performance Plastics

Viton—Reg TM DuPont Dow Elastomers LLC

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## 2. INTRODUCTION

The instructions in this manual are task-oriented for easy reference. You can go directly to a particular section and quickly find the answers. Appendix A (See page 8) lists tubing loading capacity depending on the maximum rpm of your Masterflex® L/S® pump drive used with this system.

Pump Heads

Model	Type
07534-04	6 roller, 4 channel
07535-04	
07534-08	6 roller, 8 channel
07535-08	
07536-02	3 roller, 2 channel
07536-04	3 roller, 4 channel

These multichannel pumps, designed to provide up to eight simultaneously driven pump channels, incorporate the following features:

- Simultaneous dispensing through up to eight separate channels with one set-up and pump cycle.
- Six-roller design that provides reduced pulsation (07534 and 07535 series)
- Three-roller design that provides optimum flow rate (07536 series)

### 2.1 APPLICATION DATA

The pump head is designed for multichannel use. See Section 5.1 for listing of flow rate capabilities for different tubing/pump combinations.

### 2.2 GENERAL DESCRIPTION

Each pump head is constructed with rugged anodized aluminum frames, stainless steel rotor assemblies, and either one or two precision machined aluminum occlusion beds. Occlusion beds are designed to compress the Masterflex® tubing for optimum performance—no occlusion adjustment is required. Each occlusion bed will accommodate up to 4 channels of microbore or L/S® precision tubing or up to 2 channels of L/S® high performance precision tubing. Pump heads can be stacked to allow up to 32 channels of simultaneous pumping, depending on tubing size and formulation and drive capability. Each pump head contains 3 or 6 rollers with shielded stainless steel bearings, and can quickly mount to most existing Masterflex® L/S® tubing pump drives.

## 3. INSTALLATION

Tool required: long hex key (provided)

Mount the pump head to a Masterflex® L/S® pump drive as follows:

1. Connect the pump head to the drive by aligning the tang on the pump head (Figure 2) with the slot in the motor drive shaft and the dowel pins on the drive with the receiving holes on the pump head.
2. Attach pump head to drive unit using the long hex key to tighten the four screws (provided).

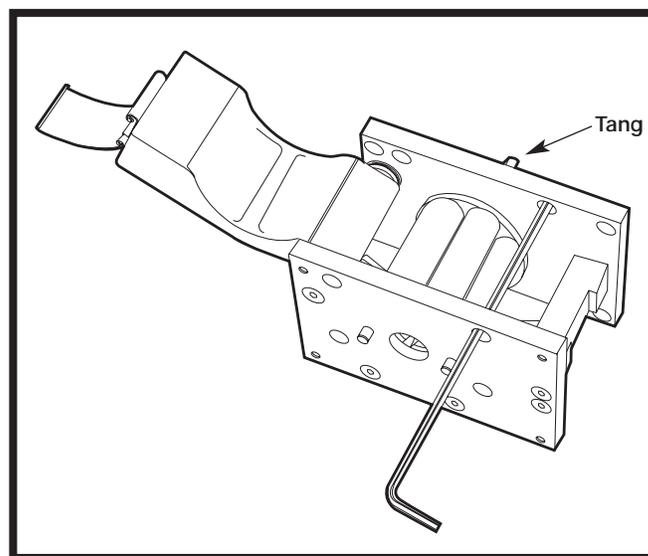


Figure 2, Pump Mounting

### 3.1 STACKING MULTIPLE PUMP HEADS

L/S® Multichannel pump heads can be stacked to provide up to 32 pumping channels from a single drive, depending on tubing size and formulation and the torque capabilities of the drive (Appendix A).

Stack multiple heads as follows:

1. Mount first head to drive per previous instructions.
2. Remove the adjustable support foot from the first head.
3. Align the tang and the holes on the back of the second pump head with the slot and the dowel pins on the front of the first pump head.
4. Fasten the pump heads together with the four screws (provided) using the holes in the four corners of the pumps (Figure 3).

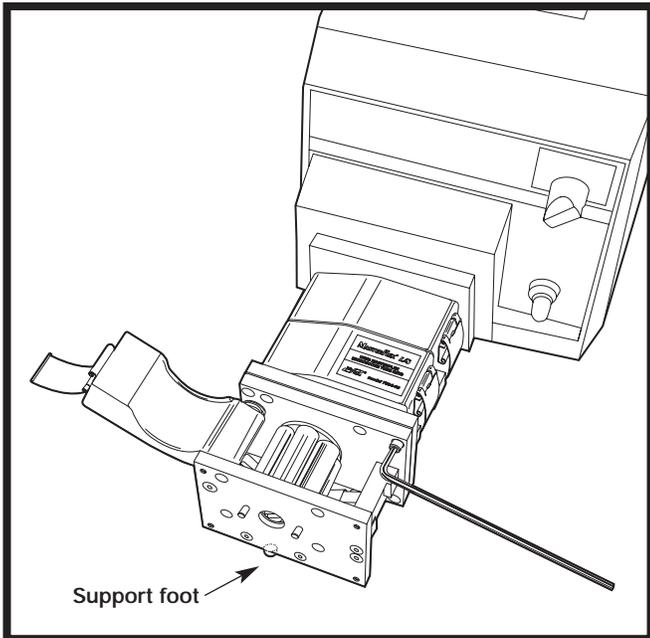


Figure 3, Stacking Pump Heads

Adjustable support foot may be used to stabilize pump stack. Rotate the foot on the front pump as required to prevent the pump and drive from rocking.

## 4. SETUP

Multichannel pump heads accommodate a broad range of tubing sizes as noted in Section 5.1.

### 4.1 SELECT TUBING

Depending on which pump head is used, up to eight tubing sets can be teamed up in a single pump head. Tubing sizes can be intermixed within each occlusion bed as long as the same tubing material is used.

Use only Masterflex® two-stop tubing sets (Figure 4) with Masterflex® multichannel tubing pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

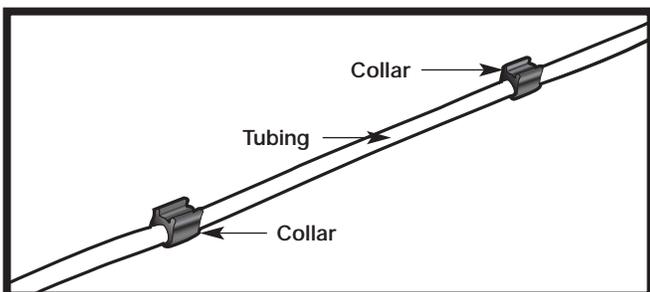


Figure 4, Masterflex® Two-Stop Tubing Set

### 4.2 TUBE LOADING

**! WARNING:** Turn off drive before removing or installing tubing. Safety guard is provided to minimize risk of fingers getting caught between roller mechanism and the base of the module. However, be safe—keep your fingers away from these areas.

**! CAUTION:** Use only tubing sets listed in Appendix B. Use of other tubing could cause malfunction or damage to the pump.

With the drive stopped, follow this procedure to install tubing:

1. Release latch and open occlusion bed (Figure 5).
2. From the top of the pump head, insert one end of the tubing over rollers. While holding occlusion bed, open spring loaded safety guard enough so that tubing can be inserted between guard and slotted tubing retainer (Figure 6).
3. Place tubing stop collar into slot to secure (Figure 7).
4. Making sure not to twist tubing, lightly stretch it across rollers to secure tubing stop collar in corresponding slot on the opposite end of pump head (latch side) (Figure 8).

Repeat the process for additional tubing channels as required.

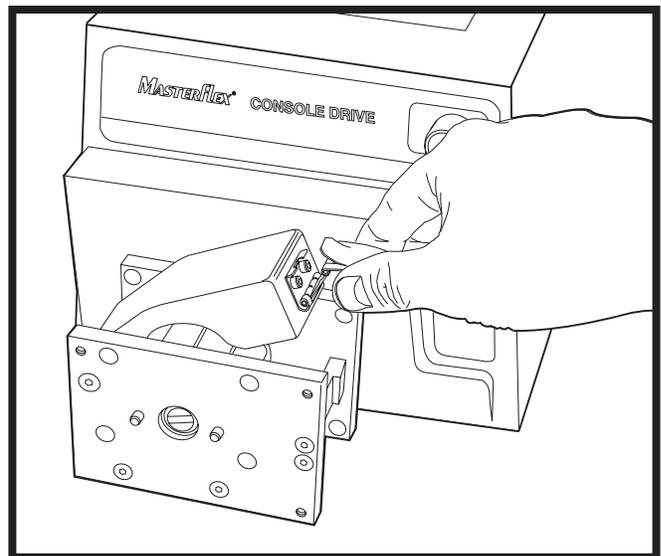


Figure 5, Release latch and open occlusion bed.

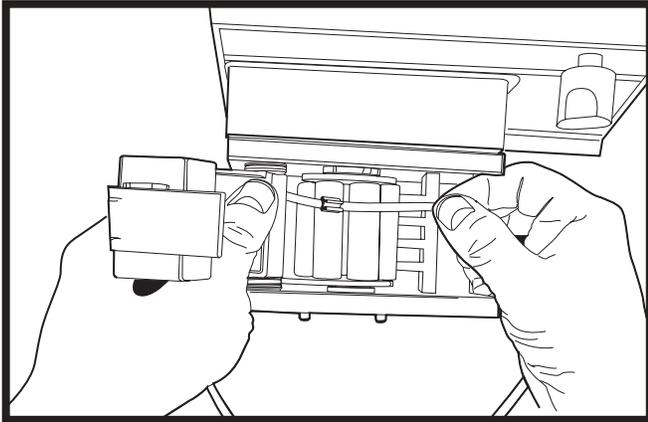


Figure 6, Insert one end of the tubing over rollers.

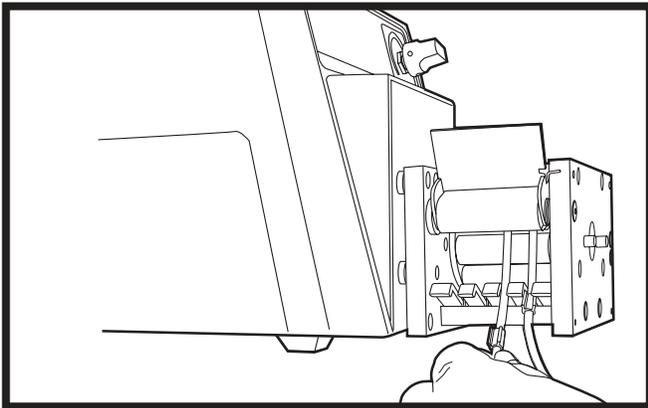


Figure 7, Place tubing stop collar into slot to secure.

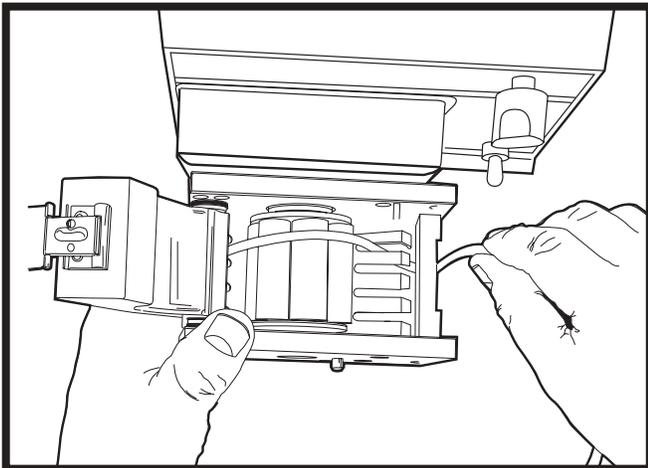


Figure 8, Secure tubing stop collar in corresponding slot.

### 4.3 TUBING REMOVAL

Follow this procedure to unload the tubing:

1. Turn the drive OFF.
2. Unlatch and open occlusion bed.
3. Pull tubing down from slot to release tubing stop collar (Figure 9).
4. Release tubing stop collar from corresponding slot from other side.

Repeat for additional channels.

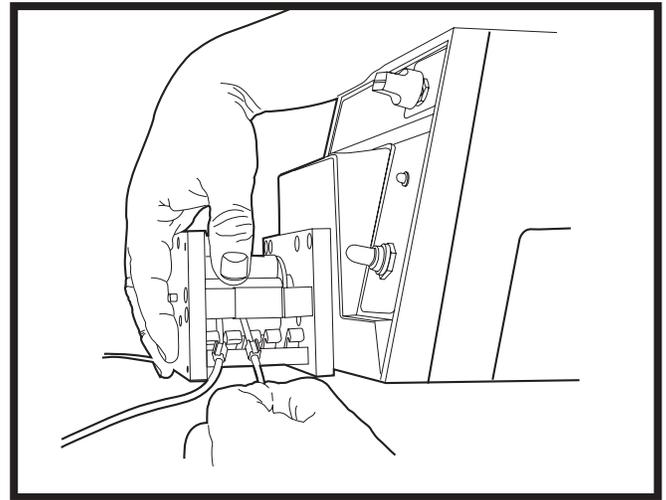


Figure 9, Pull tubing down from slot to release tubing stop collar.

#### Bi-directional Pumping

Fluids can be pumped into and back out of containers by reversing the drive.

#### Partial Bank Pumping

The pump can be operated with either a partial or full bank of tubing sets.

## 5. OPERATION

This section describes the procedures for obtaining the desired performance.

## 5.1 SELECT TUBING AND PUMP HEADS

Use Table 1 (See below) to select the tubing to provide the required single channel flow rate.

See Appendix B (Page 8) for ordering information on the Masterflex® Two-Stop Pump Tube Sets.

## 5.2 SELECT PUMP SPEED

Select fixed speed drive or adjust speed of variable-speed drive to provide desired nominal flow rate within the rpm speed range shown for the pump model selected.

## 6. MAINTENANCE

No maintenance is required. Wipe the pump head with a clean cloth and a mild detergent to clean. Never immerse or use excessive fluid.

### 6.1 SERVICE PARTS

Hex Key (9/64-in. hex)

Model 07534-04, 07535-04, 07536-02 A-3502

Model 07534-08, 07535-08, 07536-04 A-4376

Mounting Screws B-1079-0515

Support Foot A-4128-0005

Table 1 — Flow rates

Pump Models	Tubing Type	Tubing Size	Drive RPM	Flow Rate per Channel in ml/min
07534-04 07534-08	Microbore	0.19 mm ID	1 to 100 6 to 600	0.0026 to .26 Not recommended*
		0.25 mm ID	1 to 100 6 to 600	0.0053 to .53 Not recommended*
		0.89 mm ID	1 to 100 6 to 600	0.054 to 5.4 0.30 to 30
		1.42 mm ID	1 to 100 6 to 600	0.12 to 12 0.67 to 67
		2.06 mm ID	1 to 100 6 to 600	0.23 to 23 1.25 to 125
		2.79 mm ID	1 to 100 6 to 600	0.35 to 35 2.0 to 200
07535-04 07535-08	L/S® Precision	L/S® 13	1 to 100 6 to 600	0.045 to 4.5 0.27 to 27
		L/S® 14	1 to 100 6 to 600	0.16 to 16 0.96 to 96
		L/S® 16	1 to 100 6 to 600	0.47 to 47 2.8 to 280
07536-02 07536-04	L/S® High Performance Precision	L/S® 15	1 to 100 6 to 600	1.6 to 160 10 to 1000
		L/S® 24	1 to 100 6 to 600	2.8 to 280 17 to 1700
		L/S® 35	1 to 100 6 to 600	3.8 to 380 23 to 2300

\* Not recommended to use these tubing sizes at speeds greater than 300 rpm.

## 7. SPECIFICATIONS

### PUMP HEAD SPECIFICATIONS

<b>Speed Range:</b>	1 to 600 rpm
<b>Torque Load:</b>	5 oz-in (max.) with no tubing
<b>Operating Temperature Range:</b>	0° to 40°C (32° to 104°F)
<b>Storage Temperature Range:</b>	-40° to 110°C (-40° to 230°F)
<b>Construction and Chemical Resistance:</b>	Stainless steel, anodized aluminum, and sealed stainless steel ball bearings.

#### Dimensions:

07534-04, 07535-04, 07536-02	3"L x 4.5"W x 3"H (75 mm x 115 mm x 75 mm) 2.5 lb (1.2 kg)
07534-08, 07535-08, 07536-04	4.8"L x 4.5"W x 3"H (122 mm x 115 mm x 75 mm) 3.9 lb (1.8 kg)

## 8. WARRANTY

Use only Masterflex® tubing sets with Masterflex® pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

The Manufacturer warrants this product to be free from significant deviations from published specifications. If repair or adjustment is necessary within the warranty period, the problem will be corrected at no charge if it is not due to misuse or abuse on your part as determined by the Manufacturer. Repair costs outside the warranty period, or those resulting from product misuse or abuse, may be invoiced to you.

The warranty period for this product is noted on the warranty card.

## 9. PRODUCT RETURN

To limit charges and delays, contact the seller or Manufacturer for authorization and shipping instructions before returning the product, either within or outside the warranty period. When returning the product, please state the reason for the return. For your protection, pack the product carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility.

## 10. TECHNICAL ASSISTANCE

If you have any questions about the use of this product, contact the Manufacturer or authorized seller.

#### Cole-Parmer Instrument Company

625 E. Bunker Court, Vernon Hills, Illinois U.S.A. 60061-1844  
800-MASTERFLEX (627-8373) • (847) 247-2929 (fax)  
www.masterflex.com • e-mail: techinfo@coleparmer.com

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#### Manufactured by: Barnant Company

28W092 Commercial Ave., Barrington, Illinois U.S.A. 60010-2392  
(847) 381-7050 • (847) 381-7053 (fax)  
www.barnant.com • e-mail: barnant@barnant.com

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## 11. APPENDIX A

### TUBE LOADING CAPACITY

Additional channel capacity may be possible with certain tubing sizes and materials. Contact the Manufacturer or authorized seller for details.

(See page 8.)

## 12. APPENDIX B

### MASTERFLEX® TWO-STOP TUBE SETS

(See page 8.)

**Appendix A — Tube Loading Capacity**

Pump Models	Tubing Type	Tubing	Maximum Number of Channels*	
		Material	100 RPM Drive	600 RPM Drive
07534-04 07534-08	Microbore	Silicone Platinum Cure	32	28
		Santoprene®	32	20
		PVC	16	8
		Viton®		
07535-04 07535-08	L/S® Precision	Silicone Platinum Cure	24	12
		PharMed®	16	8
		Tygon® Lab	12	8
		Viton®		
07536-02 07536-04	L/S® High Performance Precision	Silicone Platinum Cure	12	6
		PharMed®	8	4
		Tygon® Lab	6	4
		Viton®		

\* Number of channels may be achieved by stacking any combination of 2, 4, or 8 channel heads.

**Appendix B — Masterflex® Two-Stop Tube Sets**

Tubing Type	Tubing Size	Material				
		Silicone Platinum Cure	Santoprene®	PVC	Viton®	
Microbore	0.19 mm ID	N/A	N/A	06416-10	N/A	
	0.25 mm ID	N/A	06431-12	06416-12	N/A	
	0.89 mm ID	06421-26	06431-26	06416-26	06428-26	
	1.42 mm ID	06421-34	06431-34	06416-34	06428-34	
	2.06 mm ID	06421-42	06431-42	06416-42	06428-42	
	2.79 mm ID	06421-48	06431-48	06416-48	06428-48	
Quantity/pk		6	12	12	12	
L/S® Precision		Silicone Platinum Cure	PharMed®	Tygon® Lab	Viton®	
		L/S® 13	06421-13	06431-13	06416-13	06428-13
		L/S® 14	06421-14	06431-14	06416-14	06428-14
		L/S® 16	06421-16	06431-16	06416-16	06428-16
Quantity/pk		8	8	8	8	
L/S® High Performance Precision		L/S® 15	06421-15	06431-15	06416-15	06428-15
		L/S® 24	06421-24	06431-24	06416-24	06428-24
		L/S® 35	06421-35	06431-35	06416-35	06428-35
Quantity/pk		4	4	4	4	