

## MARVELBO-SC and SCB SERIES CONTINUOUS FLOW IN-TANK SUCTION INDICATING FILTER

Permits Filter Servicing With Uninterrupted Machine Operation

Another Revolutionary First from Marvel—the filter people—The Marvelbo In-The-Tank Continuous Flow Suction Indicating Filter—economical in purchase cost—economical to install—economical to use and service without interruption of machine operation.

- Permits Filter servicing without machine shutdown.
- Eliminates the conventional filter housing because it mounts **inside** the reservoir...saves space, weight, installation, and filter costs.
- Large, long life element reduces servicing frequency, lowers pressure drop and permits finer filtration.
- Self priming design eliminates need for air bleed.
- Wide choice of cleanable or throw-away filter elements.
- Designed for low minimum oil level operation.
- Thumb screws permit filter service **without** tools. (SC Series only.)
- Eliminates mess of draining conventional filters...does away with priming problems.
- Element shroud permits low oil level operation with **full element effectiveness**.
- Famous Colorator Indicator reads element condition as well as magnetic element condition. (Magnets optional.)
- Filter may be sized as large as desired without danger of oversizing and pump priming problems.
- Reduces suction line air leaks as outlet port is below oil.
- Standard size element fits same size Marvel Colorator Suction, return line or pressure filter.
- Available with optional electric warning switch and/or "T" Type dual port outlet for convenient piping when filtering oil to two pumps from the same filter.

### SIMPLE, EFFICIENT OPERATION & SERVICING

The filter element can be serviced easily and quickly; simply remove 4 screws, lift off the cover...and the element comes off with the cover assembly...no fishing around in the oil for a submerged element. Snap the replacement or cleaned element into the shroud assembly and reinstall. It is **automatically** guided into proper position. The element is centered by the element guide so that it slips quickly and easily onto the outlet port.

Nothing is required to be closed, reopened, reset or checked after the cover has been reinstalled. And while the cover is off, the filter outlet port is protected by an expanded metal guard.

The unique shrouded element design enables use of generous size elements for long life, minimum servicing frequency and low pressure drop.

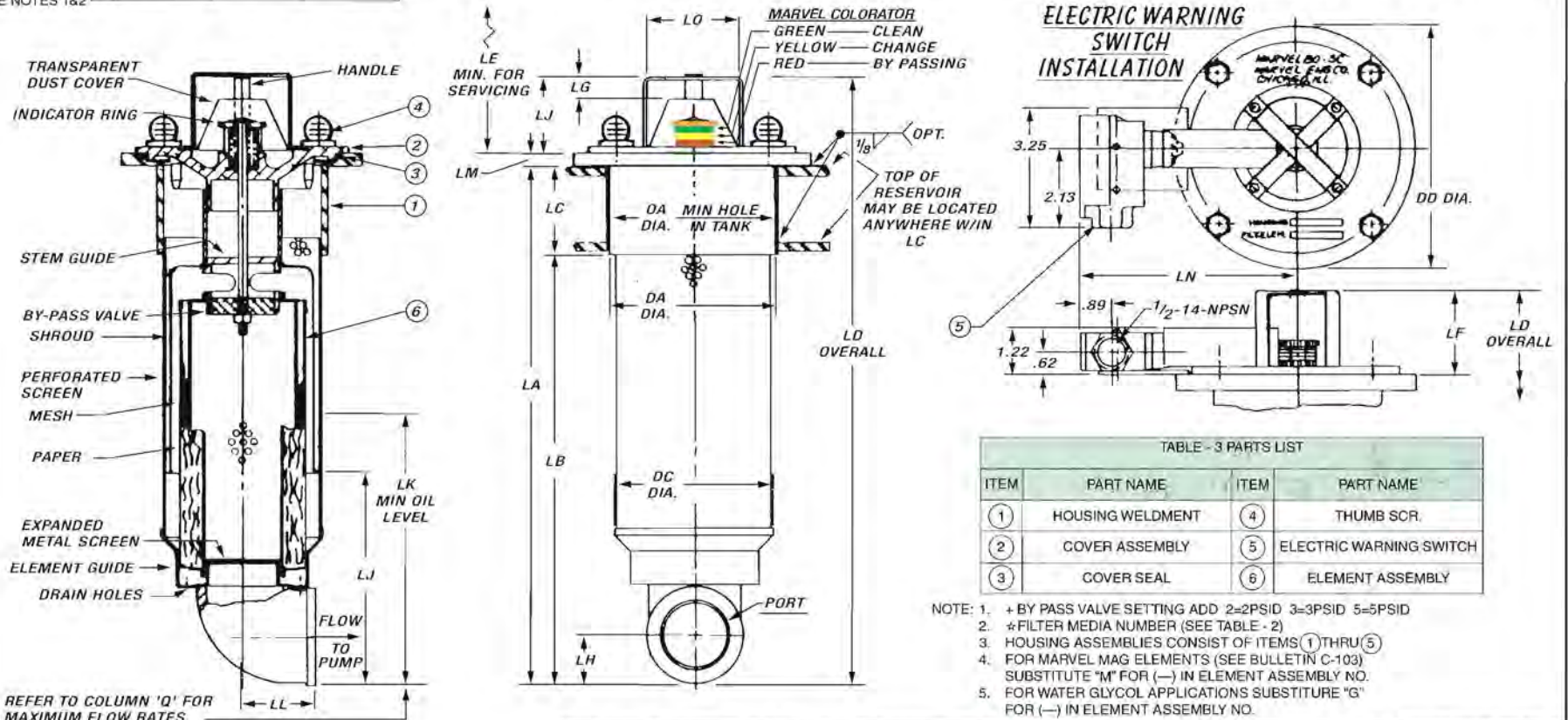
The element shroud allows low oil level operation **even below the top of the element** giving full element effectiveness to meet pump flow requirements. Contrast this to small, squat elements designs of unshrouded elements which must be entirely below oil level for full element effectiveness.

The famous Colorator Indicating Filter Cover tells as simply as a traffic light in green, yellow and red colors when element service is required. It is recommended that the filter be serviced when the indicator is in the yellow and **before** it reaches the red band. This will assure full flow filtration at all times.



PORT		GROUP — A LUBRICANTS HYDRAULIC OILS COOLANTS (SEE NOTES)				GROUP — B PHOSPHATE ESTER BASE FLUIDS				ELECTR. WARNG SWITCH SPDT 15A 125VAC	DIMENSIONAL DATA																DRY WT. LBS.	FLOW RATE Q	TABLE -2 MEDIA DATA				
		HOUSING ASSEMBLY		ELEMENT ASSEMBLY		HOUSING ASSEMBLY		ELEMENT ASSEMBLY			LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LM	LN	LO	DA	DB			DC	DD	MEDIA NO.	NOM. RATING MICRO- METERS	MEDIA DESCRIPTION
		MEC-612B+140	668306-*	MEC-613B+140	669306-*	MEC-615B+140	669306-*	MEC-613B+165	669306-*		MEC-615B+165	669306-*	14.00	11.22	2.78	17.00	14.31	2.25	.75	1.19	5.41	7.00	1.94	1.00	5.88	2.50			4.53	4.50	4.32	6.50	7110
1" - 1 1/2" NPT	MEC-614B+140	668306-*	MEC-615B+140	669306-*	YES	14.00	11.22	2.78	17.00	14.31																	7120	20	PAPER				
	MEC-612B+165	668306-*	MEC-613B+165	669306-*	NO	16.50	11.22	5.28	19.50	16.81																	7199	100	PAPER				
	MEC-614B+165	668306-*	MEC-615B+165	669306-*	YES	16.50	11.22	5.28	19.50	16.81																	1220	74	200 MESH S/S				
	MEC-620B+192	682466-*	MEC-621B+192	683466-*	NO	19.25	15.00	4.25	23.37	19.34																		1215	105	150 MESH S/S			
2" - 8 NPT	MEC-622B+192	682466-*	MEC-623B+192	683466-*	YES	19.25	15.00	4.25	23.37	19.34																	1210	141	100 MESH S/S				
	MEC-620B+242	682466-*	MEC-621B+242	683466-*	NO	24.25	15.00	9.25	28.37	24.34																	1208	190	80 MESH S/S				
	MEC-622B+242	682466-*	MEC-623B+242	683466-*	YES	24.25	15.00	9.25	28.37	24.34																	1206	262	60 MESH S/S				
	MEC-628B+222	686566-*	MEC-629B+222	687566-*	NO	22.22	16.44	5.78	26.34	20.94																		1205	308	50 MESH S/S			
3" - 8 NPT	MEC-630B+222	686566-*	MEC-631B+222	687566-*	YES	22.22	16.44	5.78	26.34	20.94																	1204	385	40 MESH S/S				
	MEC-628B+297	686566-*	MEC-629B+297	687566-*	NO	29.72	16.44	13.28	33.84	28.44																	1203	546	30 MESH S/S				
	MEC-630B+297	686566-*	MEC-631B+297	687566-*	YES	29.72	16.44	13.28	33.84	28.44																	1202	914	20 MESH S/S				

SEE NOTES 1&2



SUBMIT SAMPLES FOR ENGINEERING APPROVAL BEFORE PRODUCTION RUN.

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THE FOLLOWING TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED

2PL DECIMALS ± .015  
3PL DECIMALS ± .003  
ANGLES ±

DRILL, PUNCH AND COMMERCIAL STOCK SIZES NOT INCLUDED IN ABOVE

**MARVEL ENGINEERING COMPANY**  
2685 N. HAWTHORNE AVE. MELROSE PARK, ILL. 60160

NAME  
SUCTION FILTER ASSEMBLY  
MARVELBO-SC

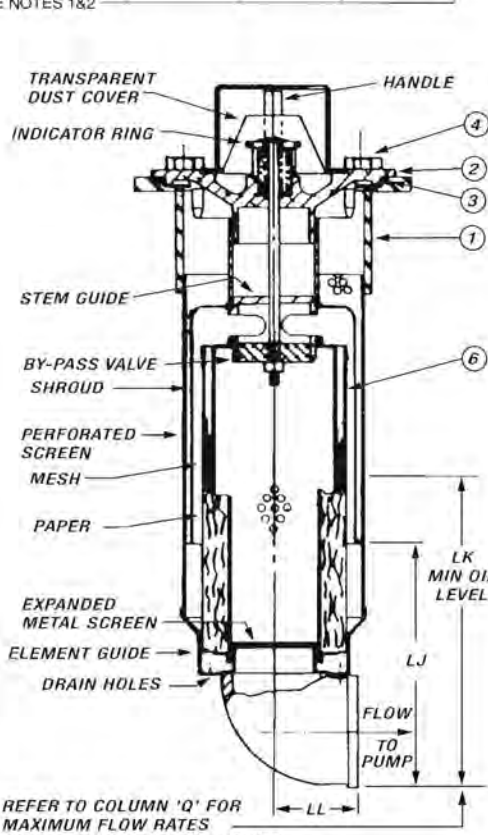
NO.  
MEC-612 thru  
MEC-631

TABLE-1 SELECTION DATA

PORT	GROUP - A LUBRICANTS HYDRAULIC OILS COOLANTS (SEE NOTES)		GROUP - B PHOSPHATE ESTER BASE FLUIDS		ELECTR. WARNG SWITCH SPDTR 15A 125VAC	DIMENSIONAL DATA																DRY WT. LBS.	FLOW RATE Q		
	HOUSING ASSEMBLY	ELEMENT ASSEMBLY	HOUSING ASSEMBLY	ELEMENT ASSEMBLY		LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LM	LN	LO	DA	DB			DC	DD
1'-11 NPT	MEC-612B+140	668306-*	MEC-613B+140	669306-*	NO	14.00	11.22	2.78	17.00	14.31														7.1	33 GPM
	MEC-614B+140	668306-*	MEC-615B+140	669306-*	YES	14.00	11.22	2.78	17.00	14.31														7.1	
	MEC-612B+165	668306-*	MEC-613B+165	669306-*	NO	16.50	11.22	5.28	19.50	16.81	2.25	.75	1.19	5.41	7.00	1.94	1.00	5.88	2.50	4.53	4.50	4.32	6.50	8.6	
	MEC-614B+165	668306-*	MEC-615B+165	669306-*	YES	16.50	11.22	5.28	19.50	16.81														8.6	
2'-8 NPT	MEC-620B+192	682466-*	MEC-621B+192	683466-*	NO	19.25	15.00	4.25	23.37	19.34														26.5	77 GPM
	MEC-622B+192	682466-*	MEC-623B+192	683466-*	YES	19.25	15.00	4.25	23.37	19.34														26.5	
	MEC-620B+242	682466-*	MEC-621B+242	683466-*	NO	24.25	15.00	9.25	28.37	24.34	3.12	1.25	1.81	6.86	8.56	2.69	1.00	7.25	3.81	7.03	7.00	6.80	9.56	33.5	
	MEC-622B+242	682466-*	MEC-623B+242	683466-*	YES	24.25	15.00	9.25	28.37	24.34														33.5	
3'-8 NPT	MEC-628B+222	686566-*	MEC-629B+222	687566-*	NO	22.22	16.44	5.78	26.34	20.94														46.8	150 GPM
	MEC-630B+222	686566-*	MEC-631B+222	687566-*	YES	22.22	16.44	5.78	26.34	20.94														46.8	
	MEC-628B+297	686566-*	MEC-629B+297	687566-*	NO	29.72	16.44	13.28	33.84	28.44	3.12	1.04	2.44	8.00	9.72	3.44	1.00	7.81	4.81	8.28	8.25	7.92	11.25	59.0	
	MEC-630B+297	686566-*	MEC-631B+297	687566-*	YES	29.72	16.44	13.28	33.84	28.44														59.0	

TABLE -2 MEDIA DATA		
MEDIA NO.	NOM. RATING MICRO-METERS	MEDIA DESCRIPTION
7110	10	PAPER
7120	20	PAPER
7199	100	PAPER
1220	74	200 MESH S/S
1215	105	150 MESH S/S
1210	141	100 MESH S/S
1208	180	80 MESH S/S
1206	262	60 MESH S/S
1205	308	50 MESH S/S
1204	385	40 MESH S/S
1203	546	30 MESH S/S
1202	914	20 MESH S/S

SEE NOTES 1&2



REFER TO COLUMN 'Q' FOR MAXIMUM FLOW RATES TO PREVENT VORTEXING WHILE ELEMENT IS REMOVED.- FOR HIGHER FLOW-RATES MIN. OIL LEVEL LK MUST BE RAISED.

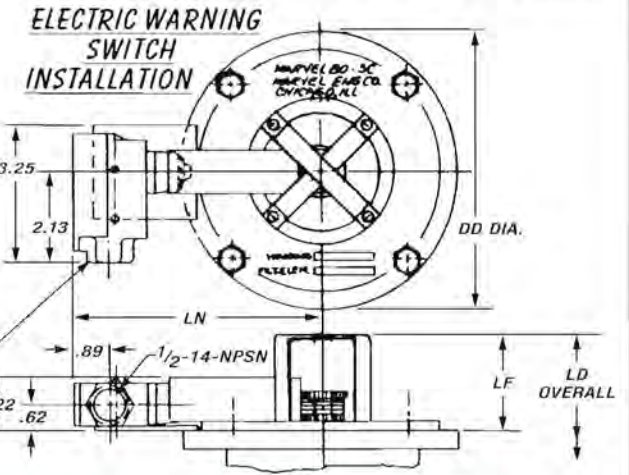
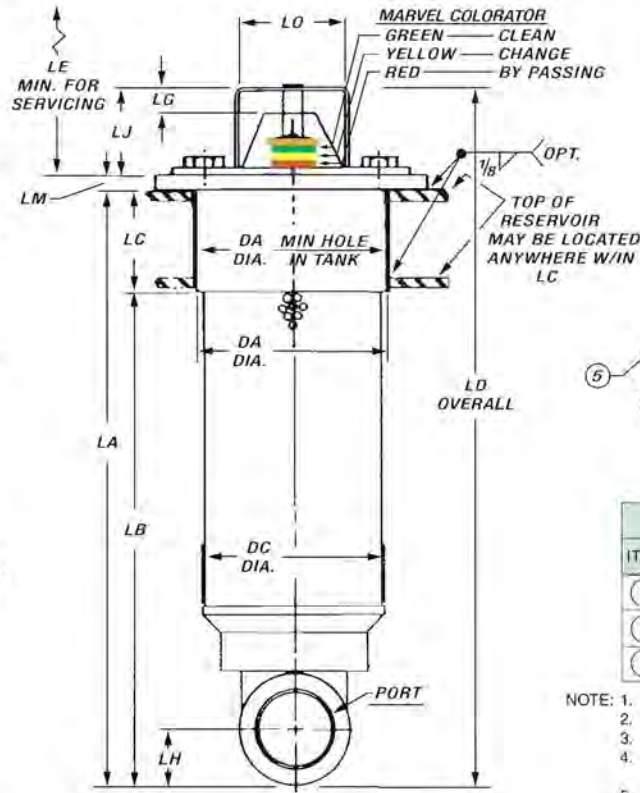


TABLE - 3 PARTS LIST			
ITEM	PART NAME	ITEM	PART NAME
1	HOUSING WELDMENT	4	HEX HD. CAP SCR.
2	COVER ASSEMBLY	5	ELECTRIC WARNING SWITCH
3	COVER SEAL	6	ELEMENT ASSEMBLY

- NOTE: 1. + BY PASS VALVE SETTING ADD 2=2PSID 3=3PSID 5=5PSID  
 2. + FILTER MEDIA NUMBER (SEE TABLE - 2)  
 3. HOUSING ASSEMBLIES CONSIST OF ITEMS 1 THRU 5  
 4. FOR MARVEL MAG ELEMENTS (SEE BULLETIN C-103) SUBSTITUTE "M" FOR (-) IN ELEMENT ASSEMBLY NO.  
 5. FOR WATER GLYCOL APPLICATIONS SUBSTITUTE "G" FOR (-) IN ELEMENT ASSEMBLY NO.

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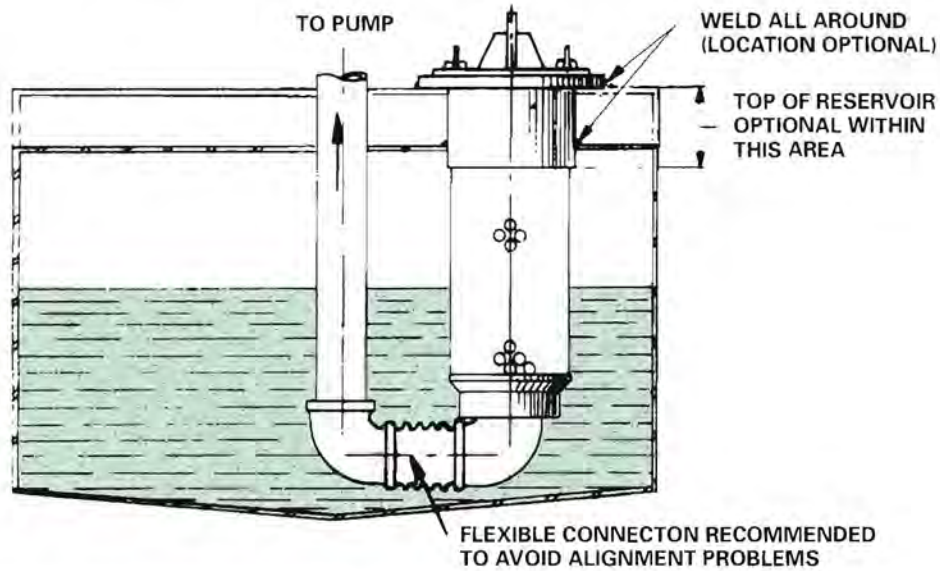
THE FOLLOWING TOLERANCES TO APPLY UNLESS OTHERWISE SPECIFIED  
 .2PL DECIMALS ± .015  
 .3PL DECIMALS ± .003  
 ANGLES °  
 DRILL, PUNCH AND COMMERCIAL STOCK SIZES NOT INCLUDED IN ABOVE.

**MARVEL ENGINEERING COMPANY**  
 2000 N. HAWTHORNE AVE. MELROSE PARK, ILL 60160

NAME SUCTION FILTER ASSEMBLY MARVELBO-SCB	NO MEC-612B thru MEC-631B
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## INSTALLATION OF MARVELBO-SC AND SCB SERIES CONTINUOUS FLOW FILTER

Simply weld the filter to the reservoir as shown below, positioning the outlet port as desired. An optional bolted mounting flange is also available, however, the selded flange installation is more economical and is recommended.



### HOW TO SIZE THE MARVELBO-SC and SCB SERIES FILTER

The total pressure drop through the filter and the suction line should not exceed what the pump can tolerate continuously. Whenever possible it is recommended that for maximum element life, the pressure drop through the filter, when clean, not exceed 0.5 P.S.I. using the 2 P.S.I. by-pass valve, and 1 P.S.I. using the 3 P.S.I. by-pass valve. The 2 P.S.I. by-pass valve "cracks" at 1-1/3 P.S.I. and the 3 P.S.I. valve "cracks" at 2 P.S.I. The filter should be cleaned before the indicator moves into the red band to avoid exceeding safe pressure drop limits and to prevent pump cavitation. The above pressure drop figures must be added to the suction line pressure drop to determine the total pressure drop to which the pump is being subjected.

#### MARVELBO-SC AND SCB SERIES FILTER

Recommended Flow Ratings for 200 mesh (74 micron) and coarser elements  
with maximum viscosity of 150 S.U.S.

Port Size	Petroleum Oil and Water Glycol Fluids	Phosphate ester Base Fluids
1-1/2	Up to 33 GPM	Up to 25 GPM
2-1/2	34 to 75 GPM	26 to 50 GPM
3-1/2	76 to 150 GPM	51 to 100 GPM

Consult Marvel for flow rating using 20 micron and finer disposable elements.

See drawing numbers MEC-612 Thru MEC-631 and MEC-612B Thru MEC-631B for filter model numbers and dimensional information.

#### SPECIFYING AND ORDERING INFORMATION

- Select housing assembly number from group A or b table 1.
- Insert by-pass valve setting number in place of † in housing assembly number.
- Select element assembly number from group A or B table 1.
- Select desired filter media from table 2 and insert in place of asterisk.
- **EXAMPLE: Complete model number for the shorter 2-1/2" NPT port Marvelbo SC Series filter (without electric warning switch) for use with petroleum base hydraulic oil, with a 2 P.S.I. by-pass valve setting and a 74 micron cleanable element would be MEC-620-2192-682466-1220.**



## MARVEL ENGINEERING COMPANY

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