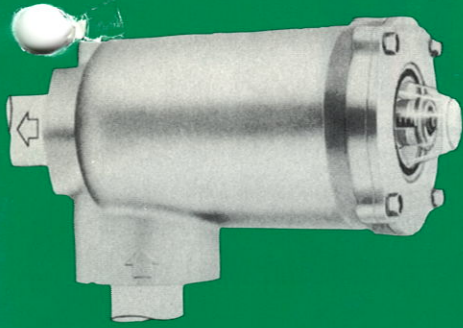
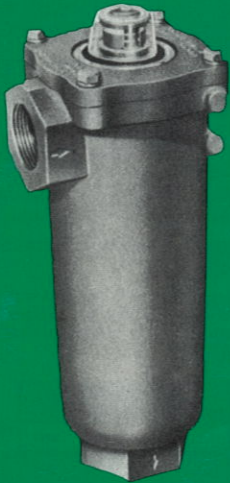


*MARVEL®

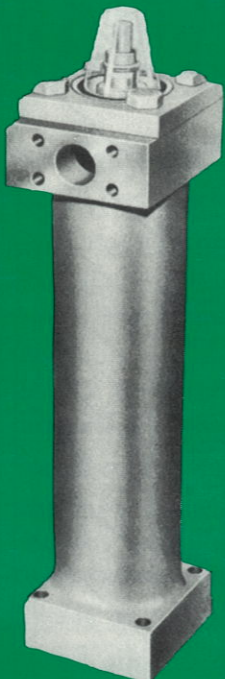
*COLORATOR INDICATING FILTERS FOR SUCTION, PRESSURE AND RETURN LINES



*MARVELBO-S

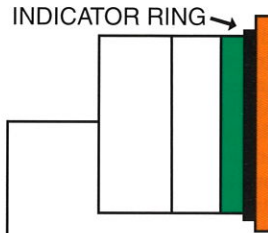


*MARVELBO-R



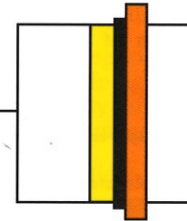
*MARVEL R2 and R5

*Trademark, MARVEL Engineering Co.



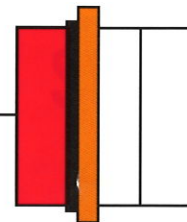
**GREEN SAYS
"ALL CLEAR"**

Indicator Ring in green band says "filter element is clean".



**YELLOW SAYS
"CAUTION"**

Ring in yellow band says "filter element is becoming contaminated but still providing full-flow filtration".



RED SAYS "STOP"

Ring in red band says "change (or clean) filter element at once or some liquid will bypass clogging element."

For Hydraulic Oils, Coolants, Lubricants • Fire-Resistant Hydraulic Fluid • Synthetic (Phosphate Ester Base) • Aqueous Base (Water Glycol)

Available with *MARVEL-MAG MAGNETIC SHIELD

- 5 to 150 GPM
- 3 to 20 MICRON PAPER or 10 MICRONS to 20 MESH WIRE CLOTH
- ELBOW TYPE-SUCTION
- LINE TYPE-PRESSURES to 5000 PSI



MARVEL ENGINEERING COMPANY

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MARVEL COLORATOR INDICATING FILTERS

For Suction, Pressure and Return Lines (MarvelMag Magnetic Shield Optional)

Yes—Big Things are continuing to happen at Marvel. Our ceaseless research into new ideas, materials, and methods is producing important advances in filter design, performance, and servicing.

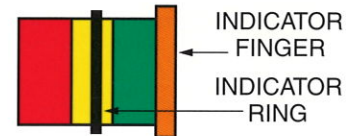
The Marvel "Colorator" Indicating Filters—now fully field tested and proven—are an outstanding example. Here is new, better protection against the solid contaminants that ruin more precision circuit components, waste more dollars in downtime and maintenance than most other factors combined.

These Marvel Filters—as presented in these pages—not only do a superior job of keeping hydraulic and other liquid systems clean, their Colorator Indicator informs you INSTANTLY, CLEARLY, CONSTANTLY about the condition of the replaceable filter element. A positive built-in WARNING SYSTEM that uses the universal language of COLOR to visually pinpoint the danger of a clogging filter element. Thus, it enables you to replace (or clean) the contaminated element BEFORE any dirt damage can result.

The simple, reliable operation of the Colorator Indicator is

explained on the front cover. So thorough is its operation that, even when the hydraulic (or other liquid system) is shut down, the Colorator continues to indicate.

The orange colored finger that moves Indicator Ring goes back to initial position, leaving Ring in color band that shows last condition of filter element.



Another example of improved filtration from Marvel is the new MarvelMag Outer Magnetic Shield that offers unique protection against the harsh, cutting ferric particles that do the most damage to hydraulic systems and components. MarvelMag is available—at customers' option—on all Marvel Colorator Indicating Filters. See back cover for interesting facts on MarvelMag.

Note: On Marvel Colorator Filters equipped with the MarvelMag Magnetic Shield, the Colorator indicates the condition of the magnetic rods as well as the condition of the filter element.

Phase 1 Filters do not have a transparent Colorator Dust Cover.

Phase 2 Filters have a transparent Colorator Dust Cover as shown in this Catalog.

Marvel Engineering Company reserves the option to ship either unless specifically requested otherwise by the customer.

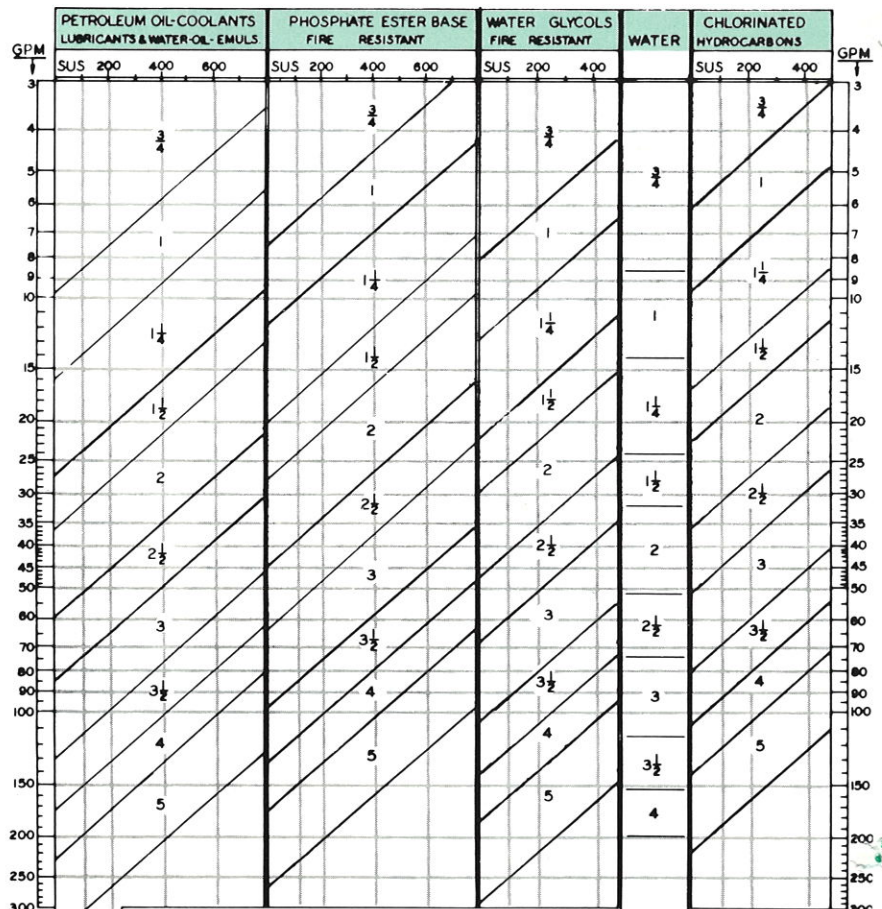
SUCTION FILTER SIZE SELECTOR CHART FOR MARVELBO-S FILTERS

EXAMPLE: Nominal Suction Port size for 20 GPM Petroleum Oil, 150 SUS at 100°F. is 1 1/4"

SUS DESIGNATES SAYBOLT UNIVERSAL SECONDS at 100°F. Chart based on specific gravities shown in table below. For lower specific gravities recommendations can be increased slightly. For higher specific gravities recommendations should be decreased slightly.

APPROXIMATE SPECIFIC GRAVITIES

FLUID	100°F	150°F
PETROLEUM OIL	.819	.762
WATER-OIL EMULSION	.904	.877
WATER	.990	.980
WATER-GLYCOL	1.036	1.018
PHOSPHATE ESTER BASE	1.190	1.165
CHLORINATED HYDROCARBON	1.427	1.398



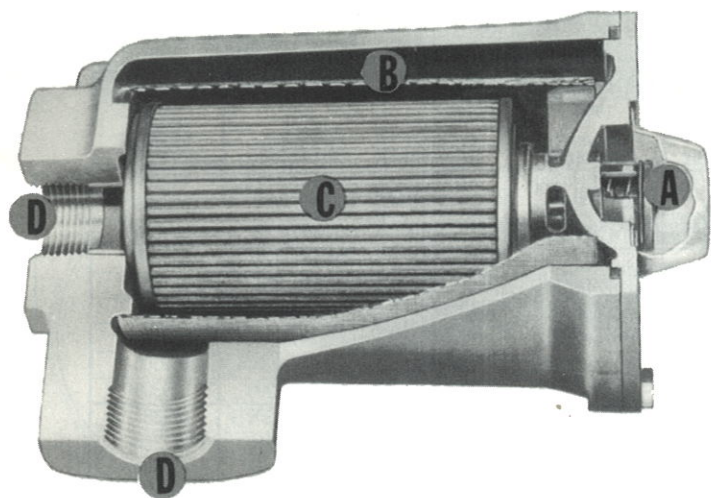
This chart based upon 0.5 psi max. pressure drop with 200 mesh and coarser elements when filter is clean. For availability of 4" and larger sizes, consult Marvel Engineering Co.

is absolutely unnecessary and strongly discouraged. Such oversizing increases filter cost and aggravates air release in filter housing, which is especially harmful with variable displacement pumps. Because they help eliminate large air pockets entering the pump, Marvail Diffusers should be specified for all variable displacement pumps (see under "Optional Equipment", page 4).

CAUTION. Because Marvelbo-S Filters have such large filtration areas and low pressure drop, selecting filters on the basis of twice the maximum GPM

Marvelbo-S Suction Filter with Superior Advantages

Colorator Indicating, Dual Filtration, Easy Installation and Servicing!



- A** Color-Coded Colorator Indicator
- B** Wire Mesh Sleeve Filter
- C** Marvel Synclinal Filter Element
- D** Maximum Port Sizes

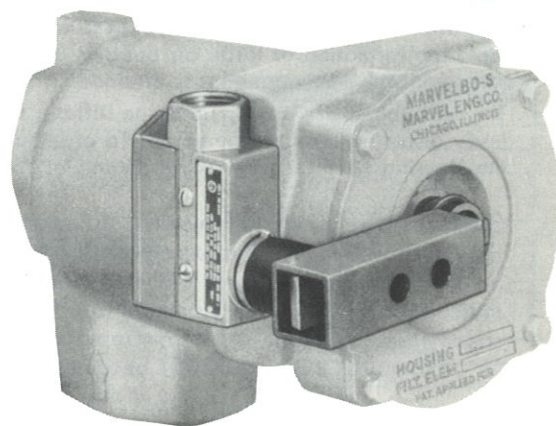
The Marvelbo-S Suction Filter with Colorator Indicator, (A) in cut-away at left, has other outstanding advantages. Its Dual Filtration feature provides superior filtering with longer element life. Initial filtration is performed by the large coarse wire mesh cylindrical sleeve (B). Within this sleeve is the fine Marvel Synclinal element (C). Other available filter element media are shown in Table II, page 4. The Sleeve Filter—easily cleaned for servicing—extends the service life of the fine Synclinal element.

The Marvelbo-S can be installed in place of the elbow that normally leads into the pump intake. Because the Filter is installed outside the reservoir, it is always readily accessible for servicing. Other advantages are:

- Element replacement in less than 90 seconds—without disturbing any piping.
- Symmetrical coaxial design makes it impossible to reassemble filter element incorrectly.
- No internal moving parts (except when by-pass opens).
- No internal springs to obstruct flow path or damage pump.
- Elements are interchangeable with those of other Marvel Colorator Filters.
- Wide selection of port options, element media.
- Built to Marvel's high quality standards.
- Lightweight and low cost.
- Available with MarvelMag Magnetic Shield (optional) for greatly enhanced filtering efficiency and protection against ferric particles.
- Marvair*-Diffuser (optional) diffuses trapped air in filter to small bubbles, helping assure quiet pump operation and eliminating possibility of large air pocket entering pump. See page 4 for recommended usage.
- Warning Switch-Options. (See below)

MARVEL ELECTRIC WARNING SWITCH

- Provides electric signal for operating light or alarm.
- Switch and conduit not disturbed when servicing filter.
- Colorator Indicator remains clearly readable with system operating or shut down.
- Switch mechanism tamperproof—fully protected by sturdy, steel guard.
- Permits filter servicing as quickly as on standard filters—in less than 90 seconds.
- Switch setting not disturbed when servicing filter.
- Maximum speed, safety, and convenience in making switch connections and disconnections when servicing (Installation of filter cover automatically engages switch mechanism.
- Choice of Left Hand (LH) or Right Hand (RH) switch locations.
- Switch is BZE 6-2RN Micro-Switch factory set to automatically activate light or alarm when Colorator Indicator enters Red band (when filter is by-passing oil).



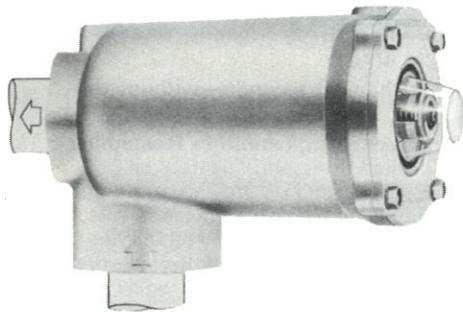
The By-Pass Code No. for the Warning Switch illustrated is "0202" for a 2 psi By-Pass and "0302" for a 3 psi By-Pass. With Switch located 180° from that shown, the Code No. is "0203" for a 2 psi By-Pass and "0303" for a 3 psi By-Pass. See next page on how to specify.

*Trade names, Marvel Engineering Co.

801161-thru 802484-
SUCTION

MARVELBO-S COLORATOR INDICATOR FILTERS

For FILTER ELEMENT MEDIA options, see Table II



Housing shown without Switch Pads

GROUP A					GROUP B	
HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS					PHOSPHATE ESTER BASE FLUIDS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
NPTF	SAE ST. TH'D.	SAE FLANGE	HOUSING NUMBERS †	FILTER ELEMENT NUMBERS	HOUSING NUMBERS	FILTER ELEMENT NUMBERS
1-11½			801161-0200	629206-*	802161-0200	630206-*
	1½-12		801162-0200	629206-*	802162-0200	630206-*
		1	801164-0200	629206-*	802164-0200	630206-*
1¼-11½			801201-0200	664266-*	802201-0200	665266-*
	1½-12		801202-0200	664266-*	802202-0200	665266-*
		1¼	801204-0200	664266-*	802204-0200	665266-*
1½-11½			801241-0200	668306-*	802241-0200	669306-*
	1½-12		801242-0200	668306-*	802242-0200	669306-*
		1½	801244-0200	668306-*	802244-0200	669306-*
2-11½			801321-0200	676386-*	802321-0200	677386-*
	2½-12		801322-0200	676386-*	802322-0200	677386-*
		2	801324-0200	676386-*	802324-0200	677386-*
2½-8			801401-0200	682466-*	802401-0200	683466-*
		2½	801404-0200	682466-*	802404-0200	683466-*
3-8			801481-0200	686566-*	802481-0200	687566-*
		3	801484-0200	686566-*	802484-0200	687566-*
3½-8			801561-0200	686566-*	802561-0200	687566-*
		3½	801564-0200	686566-*	802564-0200	687566-*

OPTIONAL EQUIPMENT

ELECTRIC WARNING SWITCH. For operating warning light or alarm. Described and illustrated on page 3.

TO SPECIFY WITH SWITCH LOCATED AS ILLUSTRATED ON PAGE 3...

Example: For Switch with 2 psi By-Pass, Housing No. "801161-0200" becomes "801161-0202". For Switch with 3 psi By-Pass, Housing No. becomes "801161-0302".

TO SPECIFY WITH SWITCH LOCATED 180° FROM THAT ILLUSTRATED ON PAGE 3...

Example: For Switch with 2 psi By-Pass, Housing No. "801161-0200" becomes "801161-0203". For Switch with 3 psi By-Pass, Housing No. becomes "801161-0303".

MARVAIR DIFFUSER. Use with pumps sensitive to cavitation caused by large air bubbles that often form in suction filters. And use with all variable displacement pumps, which promote the formation of large air bubbles because the filter is oversized at low pump flow rates until full volume output is attained.

The air bubbles are broken up by the Diffuser into tiny bubbles that are quickly and harmlessly dispelled through the pump. To order a Marvaire Diffuser, replace the dash (-) in the Housing Number with a "D". Example: "801161-0200" becomes "801161D0200".

SEALED DUST COVERS. Protective, transparent dust covers for Colorator Indicators are provided by Marvel at no extra cost. The Sealed Covers are optional (at no extra cost) on Marvelbo-S and Marvel R Filters. When Sealed Covers are supplied, the Colorator Indicator Ring (Item 14) is omitted to accommodate the Sealed Cover Installation. To specify the Sealed Cover, merely replace the dash (-) in the Housing Number with an "E". Example: "801161-0200" becomes "801161E0200".

OVERSIZE INLET PORT (One size larger than standard) is available at nominal cost on Marvelbo-S Filters in both pipe-thread and straight thread port models. To specify, change 3rd digit from left in Group A Housing Numbers (Col. 4) to a "3". Example: "801201-0200" (pipe thread housing) becomes "803201-0200"; and "801202-0200" (straight thread housing) becomes "803202-0200". In the Group B Housing Numbers (Col. 6), to specify the oversized inlet port, change the 3rd digit to a "4". Example: "802481-0200" becomes "804481-0200".

†FOR 3 PSI BY-PASS CHANGE -0200 IN HOUSING NUMBER (COL. 4 OR 6) TO -0300

*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE II)

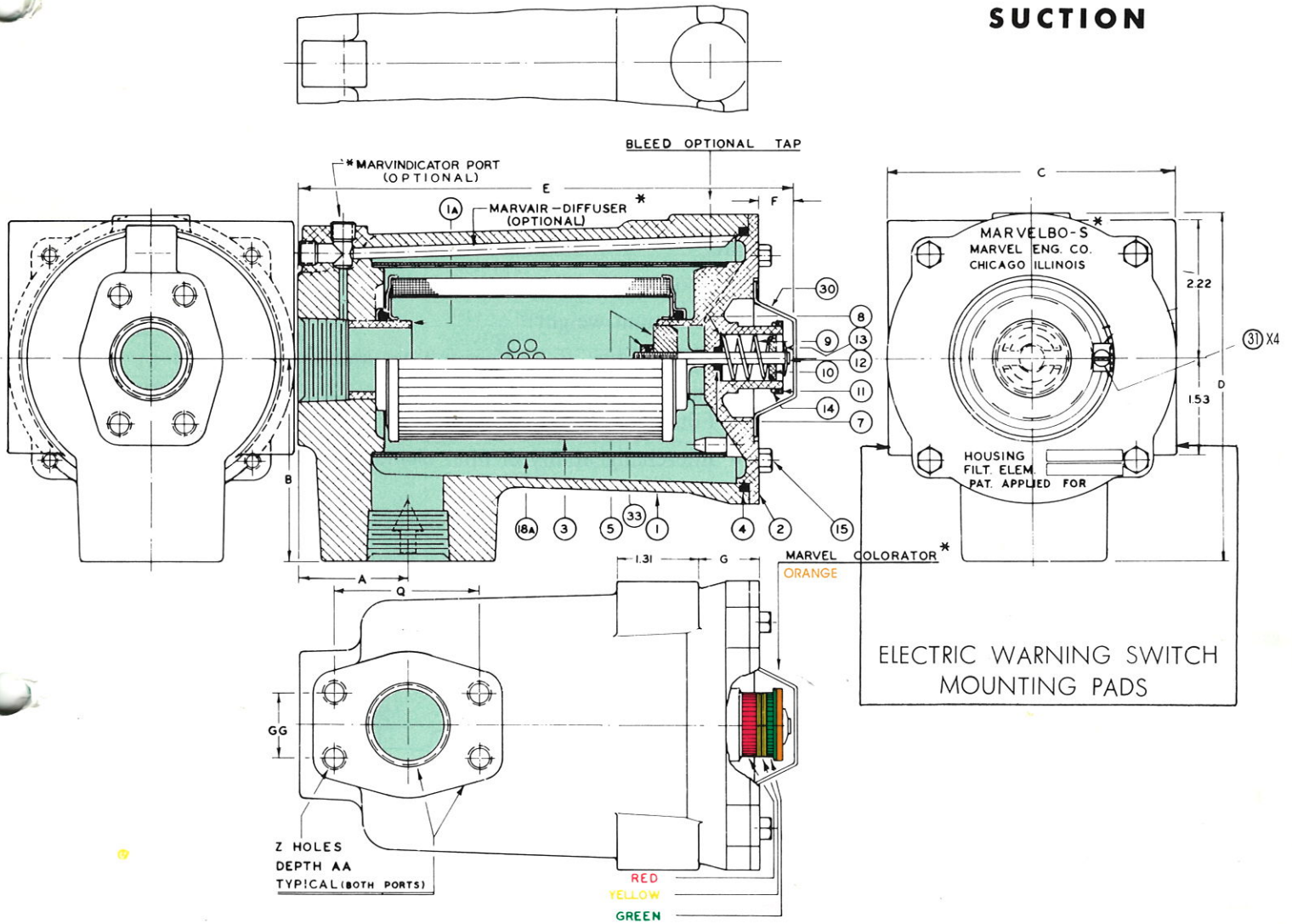
Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	546	20 Mesh Stainless Steel

SELECTING AND ORDERING

Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Numbering Code...

- Housing Number** and By-Pass Code for fluid to be filtered, from Table 1, Col. 4 or 6. (By-Pass Code is 4-digit number after dash in Housing No.).
- Filter Element Number** for fluid selected, from Table 1, Col. 5 or 7.
- Filter Element Media Number** for desired degree of filtration, from Table II.

EXAMPLE: A Marvelbo-S, 3-8 NPTF Port, 2 psi By-Pass Suction Filter for Hydraulic Oil, 200 Mesh Stainless Steel... is specified by the following:



*Trade names, Marvel Engineering Co.

(a) Housing No.	By-Pass No.	(b) Element No.	(c) Media No.
801481-0200		686566-1220	

△ Change Dash to "E" for Epoxy Sealed Cover or to "D" for Marvaire Diffuser.

Change Dash to "M" for MarvelMag

△ If both "D" and "E" are desired, insert them in alphabetical order.
Example: 801481DE0200

To specify a MarvelMag Magnetic Element, insert "M" in place of dash shown above between Element No. and Media No. making the combined number "686566M1220". To order a replacement Filter Element only, specify combined Element-Media No. only.

DIMENSIONS

NPTF	1-11½	1½-11½	1½-11½	2-11½	2½-8	3-8	3½-8
SAE, STR.	1½-12	1½-12	1½-12	2½-12			
SAE, FL.	1	1¼	1½	2	2½	3	3½
DIMENSIONS INCHES							
A	1.75	2.00	2.25	2.50	2.88	3.25	3.25
B	3.25	3.50	3.75	4.50	5.25	6.00	6.00
C	4.62	5.12	5.62	6.88	8.38	9.50	9.50
D	5.56	6.06	6.56	7.88	9.44	10.75	10.75
E	7.75	10.62	11.00	11.60	14.80	15.41	15.41
F	.35	.62	.80	.85	1.29	1.54	1.54
G	1.00	.81	.69	.44	.50	.50	.50
APPLICABLE TO SAE FLANGES ONLY							
AA	.88	1.12	1.06	1.06	1.19	1.38	1.38
GG	1.03	1.19	1.41	1.69	2.00	2.44	2.75
Q	2.06	2.31	2.75	3.06	3.50	4.19	4.75
Z	¾-16	7/16-14	½-13	½-13	½-13	¾-11	¾-11
WEIGHT LBS.							
	4.4	6.4	7.6	10.7	16.2	22.2	22.2

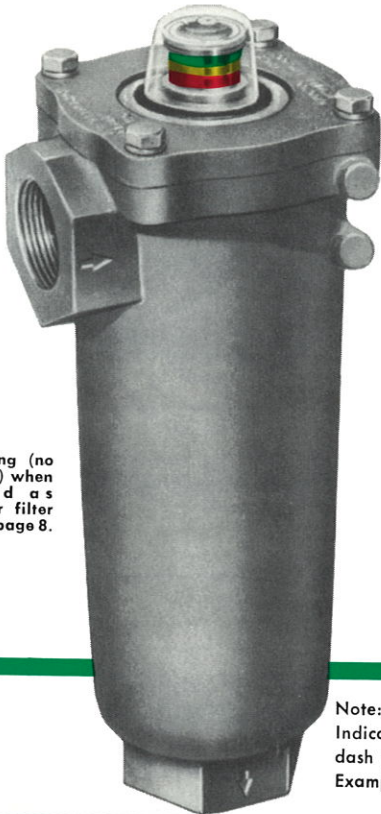
ITEM	PART NAME
1	HOUSING
1A	HOUSING SLEEVE
2	COVER
3	ELEMENT ASSEMBLY
4	HOUSING SEAL
5	VALVE DISC*
7	STEM "O" RING
8	"O" RING RETAINER
9	VALVE SPRING
10	SPRING SEAT
11	INDICATOR FINGER
12	VALVE STEM
13	STEM NUT
14	INDICATOR RING
15	COVER BOLTS
18A	SLEEVE FILTER
30	COLORATOR COVER
31	COLORATOR COVER SCREW (4)
33	LOCKNUT

*Must be Purchased as Part of Cover Assembly.

851161-thru 852322 -

250 psi (Max.) 500 psi (Max.)
 General Service Non-Shock Service
 1,000 PSI Min. Burst @ 70°F

MARVELBO-R COLORATOR INDICATING FILTERS



Self-bleeding (no air pockets) when mounted as shown. For filter sizing, see page 8.

For BY-PASS options, see Table II
 For FILTER ELEMENT MEDIA options, see Table III

The Marvelbo-R Filter with Colorator Indicator is ideal for all types of filtering applications in all pressure ranges up to 250 psi, where convenient elbow type porting is desired. Its availability with MarvelMag Magnetic Shield (optional) offers greatly enhanced filtering efficiency and protection against ferric particles. Port sizes and types cover a wide latitude of installations. Other advantages are:

- Economical price
- Minimum weight
- Wide choice of By-Pass settings and filtering media
- Dimensionally Interchangeable with the 90° Outlet R2 and R5 Filters
- Interchangeability of filter elements with other Marvel Indicating Filters
- Element replacement and/or servicing without disturbing piping
- Built to high quality Marvel specifications
- Warning Switch Options

Note: Epoxy Sealed Transparent Dust Cover over Colorator Indicator is a no-extra-cost option. To specify, merely replace dash (-) in Housing Number (Cols. 3 & 5 below) with an "E". Example: "851161-" becomes "851161E".

By-Pass Setting	Filter Element Number	Housing Number
25 PSI BY-PASS, ADD 2500	1500	to Housing Number
15 PSI BY-PASS,	1000	"
10 PSI BY-PASS,	0800	"
8 PSI BY-PASS,	0500	"
5 PSI BY-PASS,	0300	"
3 PSI BY-PASS,	0000	"
NO BY PASS,		"



Table I—Marvelbo-R Housing & Filter Element Numbers

GROUP A HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOL				GROUP B PHOSPHATE ESTER BASE FLUIDS	
(1) NPTF	(2) SAE ST. TH'D.	(3) HOUSING NUMBERS	(4) FILTER ELEMENT NUMBERS	(5) HOUSING NUMBERS	(6) FILTER ELEMENT NUMBERS
1-11/2		851161-†	629206-*	852161-†	630206-*
	1 1/8-12	851162-†	629206-*	852162-†	630206-*
1 1/4-11 1/2		851201-†	664266-*	852201-†	665266-*
	1 1/8-12	851202-†	664266-*	852202-†	665266-*
1 1/2-11 1/2		851241-†	668306-*	852241-†	669306-*
	1 1/8-12	851242-†	668306-*	852242-†	669306-*
2-11 1/2		851321-†	676386-*	852321-†	677386-*
	2 1/2-12	851322-†	676386-*	852322-†	677386-*

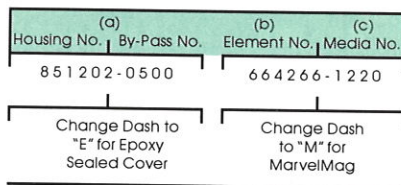
†SEE TABLE II FOR BY-PASS SETTINGS
 *INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE III)

Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

SELECTING AND ORDERING. Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Number Code:

- Housing Number for fluid to be filtered. Select from Table I, Column 3 or 5.
- By-Pass Number, from Table II.
- Filter Element Number for fluid selected, from Table I, Column 4 or 6.
- Filter Element Media Number for desired degree of filtration, from Table III.

EXAMPLE: A Marvelbo-R 1 1/8-12 SAE Straight Thread Elbow Type Filter for Hydraulic Oils, 5 psi By-Pass, 200 Mesh Stainless Steel Element ... is specified by the following:



To specify a MarvelMag Magnetic Element, simply insert "M" in place of dash shown above between Element No. and Media No. making the combined number "664266M1220". To order a replacement Filter Element only, specify combined Element-Media Number only.

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

851161-thru 852322-

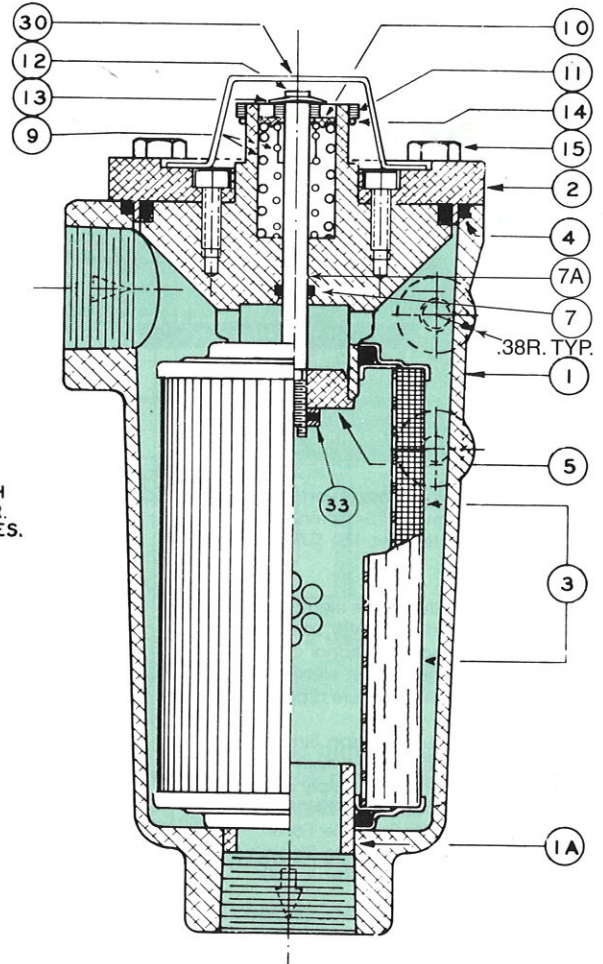
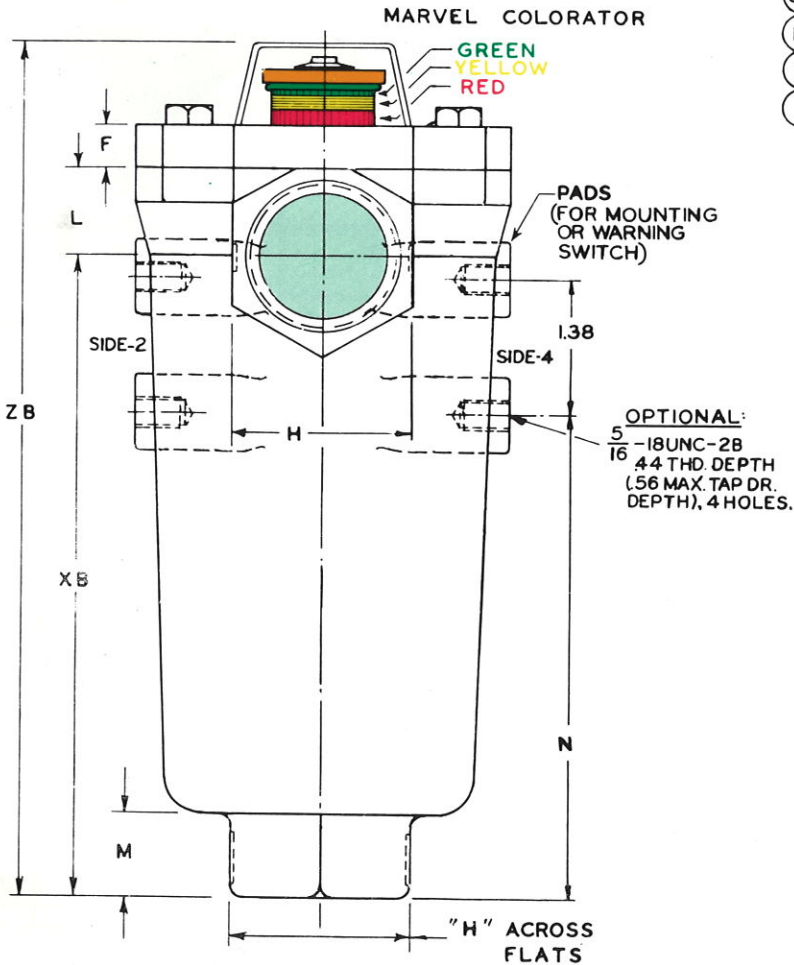
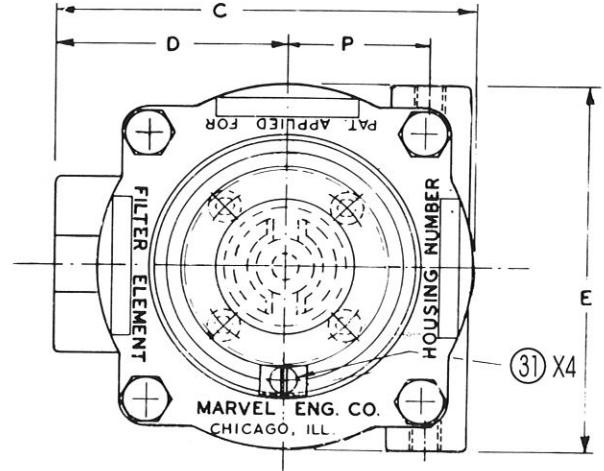
250 psi (Max.) 500 psi (Max.)
 General Service Non-Shock Service
 1,000 PSI Min. Burst @ 70°F

"Marvelbo-R Filters also available in non-indicating construction or with Electric Warning Switch. Consult Marvel for details."

DIMENSIONS				
NPTF	1-11½	1¼-11½	1½-11½	2-11½
SAE STR	1⅝-12	1⅞-12	1⅞-12	2½-12
DIMENSIONS INCHES				
C	4.00	4.62	5.31	6.38
D	2.19	2.56	3.00	3.50
E	3.62	4.12	4.62	5.75
F	.44	.44	.50	.62
H	1.75	2.50	2.88	3.50
L	.88	1.25	1.44	1.75
M	.81	1.06	1.12	1.12
N	4.81	8.44	9.25	9.81
P	1.38	1.28	1.38	1.68
XB	6.38	9.38	9.56	9.81
ZB	8.54	12.19	12.78	13.47
WEIGHT LBS.				
	2.7	4.7	6.8	10.6

ITEM	PART NAME
①	HOUSING
①A	HOUSING SLEEVE
②	COVER SUB ASSEMBLY
③	ELEMENT ASSEMBLY
④	HOUSING SEAL
⑤	VALVE DISC*
⑦A	BACK-UP WASHER
⑦	STEM "O" RING
⑨	VALVE SPRING
⑩	SPRING SEAT
⑪	INDICATOR FINGER
⑫	VALVE STEM
⑬	STEM NUT
⑭	INDICATOR RING
⑮	COVER BOLTS
⑳	COLORATOR COVER
㉑	COLORATOR COVER SCREW (4)
㉓	LOCKNUT

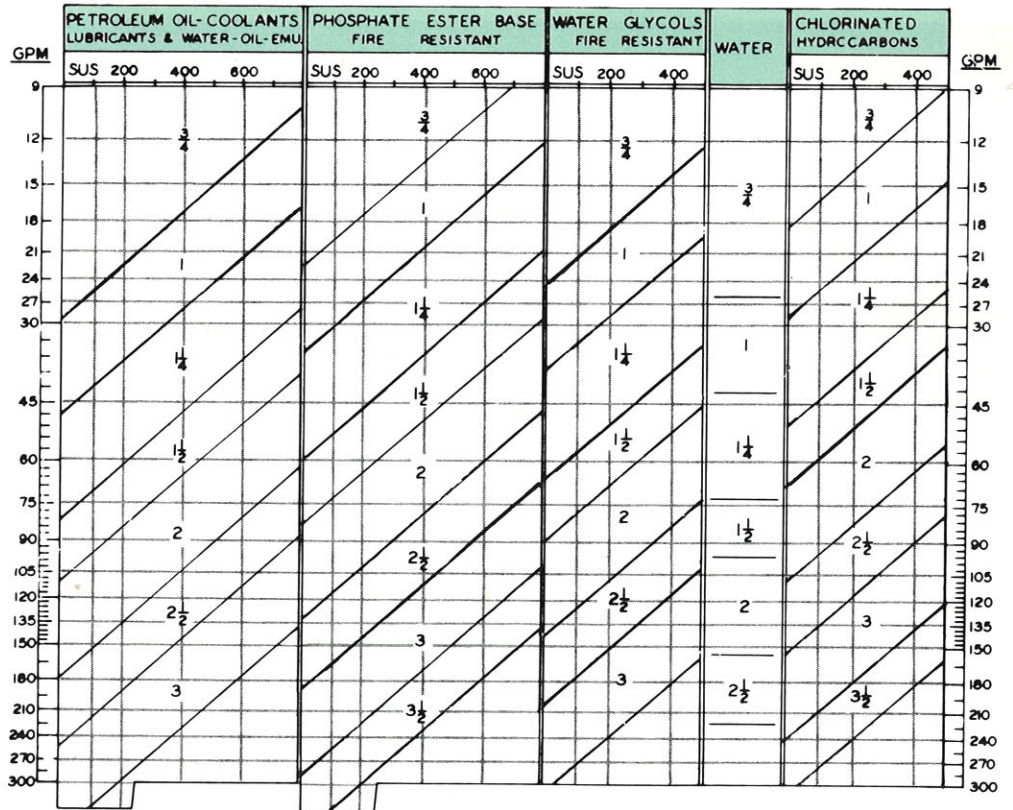
*Must be Purchased as Part of Cover Assembly.



Patents Applied For

PRESSURE and RETURN FILTER SIZE SELECTOR CHART FOR SINGLE ELEMENT
 40 Micron and Coarser
 MARVELBO-R MARVEL R2
 MARVEL R5

EXAMPLE: Nominal Pressure Port Size for Single Element, 74-Micron (200 Mesh), 75 GPM Petroleum Oil, 250 SUS at 100°F. is 1½".



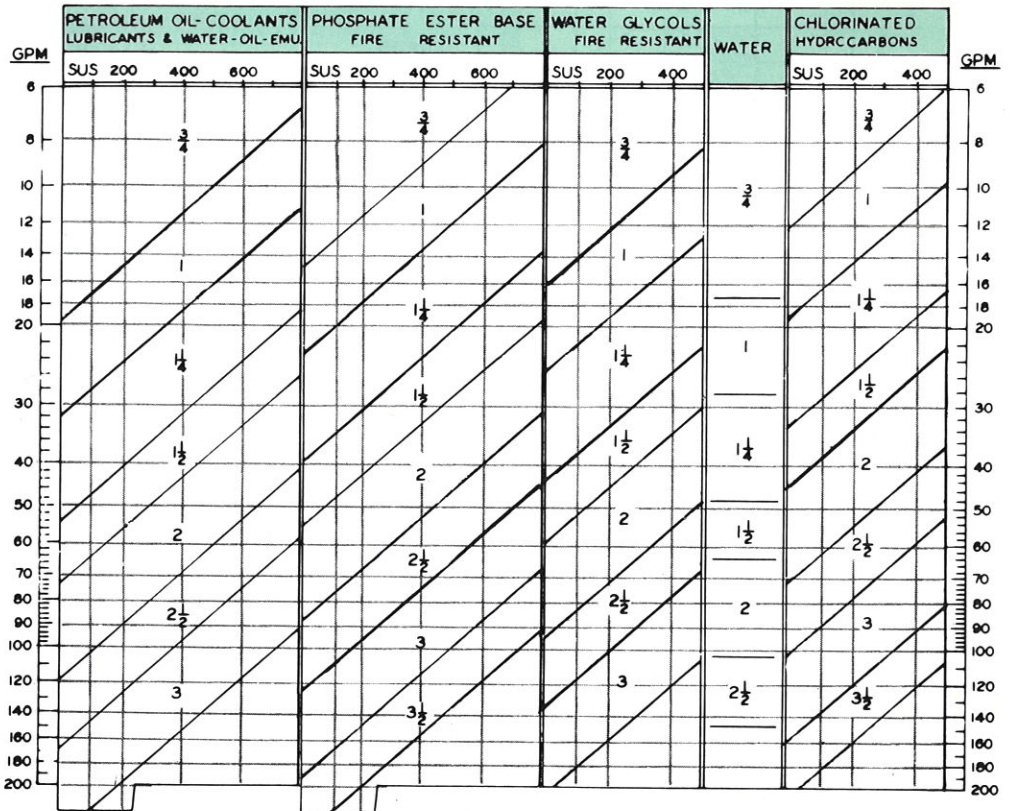
For availability of 2½" and larger sizes, consult Marvel Engineering Co.

PRESSURE and RETURN FILTER SIZE SELECTOR CHART FOR DOUBLE ELEMENTS
 3-25 Microns
 Models R2 and R5 Only

EXAMPLE: Nominal Pressure Port Size for Double Element, 10-Micron, 30 GPM, Phosphate Ester, 150 SUS at 100°F. is 1 1/4".

On 10-Micron Filters, three elements should be used wherever space permits. The small additional cost will reduce frequency of element change and initial pressure drop.

For selecting 3-25 Micron Single Element Marvelbo-R Filters from this Double Element Chart, simply size the filter on the basis of double your GPM requirements. Example: For 30 GPM applications, size the Single Element Marvelbo-R Filter for 60 GPM.



For availability of 2½" and larger sizes, consult Marvel Engineering Co.

Ask for our Free Marvel Filtersizer Slide Rule that, in one quick setting, gives filter size for any GPM, viscosity, and degree of filtration.

**For the First Time... ALL These Advantages
in One Great New Filter...**

MARVEL "R2" or "R5"* Colorator Indicating HEAVY DUTY HYDRAULIC FILTER

R2 SERIES up to 2000 PSI (Max.) General Service
up to 3000 PSI (Max.) Non-Shock Service
6,000 PSI Min. Burst @ 70°F

R5 SERIES up to 3000 PSI (Max.) General Service
up to 5000 PSI (Max.) Non-Shock Service
10,000 PSI Min. Burst @ 70°F

ADDED PROTECTION

from (optional) Electric Warning Switch. Switch and wiring not disturbed when changing elements.

SELF PURGING
Natural flow path eliminates air pockets that reduce filtration efficiency.

MINIMUM PRESSURE DROP
assured by smooth generous Entry Chamber.

QUICKEST, EASIEST SERVICING
Elements and Cover removed *simultaneously* for cleaning or replacement—and *without having to drain filter*. Colorator and By-Pass Assembly *not disturbed* when servicing element and *cannot be reinstalled incorrectly*.

"STANDARDIZED" COMPONENTS
save time, money, stock space. R2 and R5 have interchangeable mounting and envelope dimensions in given porting and size—and interchangeable elements which are even interchangeable in all other Marvel Indicating Filters.

HEAVY DUTY WELDED STEEL
construction. External welds only—provide smooth, inner surfaces.

CONVENIENT MOUNTING HOLES
eliminate strain on piping.

FAST, PROPER INSTALLATION AND SEATING
of element assured by Element Guide.

NEW, BETTER PROTECTION
from unique Colorator Indicator. Safeguards entire system. Uses three vibrant colors that "shout out" exact condition of elements at all times.

VASTLY IMPROVED FILTRATION
from instantly cleanable "Lay-In, Lift-Out" *MarvelMag Magnetic Rods (optional). Provide complete outer magnetic shield that traps ALL ferro-magnetic contaminants **BEFORE** they can clog element. "Colorator indicates condition of both elements and MarvelMag Magnetic Rods.

FINEST FILTRATION
(down to 5 microns) with Single or Multiple Elements (paper or wire cloth).

VERSATILE PORTING
Reverse Outlet Flow (illustrated at left), available in: a. Threaded Ports b. "O" Ring Ports (Subplate) c. SAE 4-Bolt

2. 180° Outlet—Threaded or SAE 4-Bolt
3. 90° Outlet—Threaded or SAE 4-Bolt

Patents Pending

Use Marvel R2 and R5 Colorator Indicating Filters for those tough high pressure filtering jobs. They feature the rugged construction, precision engineering, and finest quality components essential in high pressure systems where fine filtration is required for long periods without maintenance or downtime. Other outstanding features are:

- Minimum weight and envelope dimensions
- Extremely versatile selection of port options
- Interchangeability of filter elements with other Marvel Indicating Filters
- Element replacement and/or servicing without disturbing piping
- Available, at customers' option, with Warning Switch—and MarvelMag Magnetic Shield that greatly enhances filtering efficiency and element life.

Note: For complete cross-section construction details of R2 and R5 Filters, see pages 11, 13, 15 and 17.

More Information on Following Pages

R2 SERIES

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

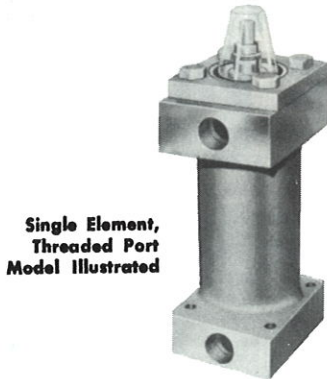
R5 SERIES

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

MARVEL FILTERS

COLORATOR INDICATING FILTERS

REVERSE OUTLET



Single Element,
Threaded Port
Model Illustrated



Double Element,
SAE 4-Bolt Flange
Port Model Illustrated

For BY-PASS and WARNING SWITCH options, see Table III
For FILTER ELEMENT MEDIA options, see Table IV
For WARNING SWITCH MOUNTING, see Page 19

811161-thru 817324-

MARVEL R2 SERIES

Table I—Housing & Filter Element Numbers—Marvel R2 Filters

GROUP A						GROUP B		
HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS			PHOSPHATE ESTER BASE FLUIDS					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NPTF	SAE ST. TH'D.	SAE FLANGE	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS
1-11½			811161-†	816161-†	629206-*	812161-†	817161-†	630206-*
	1½-12		811162-†	816162-†	629206-*	812162-†	817162-†	630206-*
		1	811164-†	816164-†	629206-*	812164-†	817164-†	630206-*
1¼-11½			811201-†	816201-†	664266-*	812201-†	817201-†	665266-*
	1½-12		811202-†	816202-†	664266-*	812202-†	817202-†	665266-*
		1¼	811204-†	816204-†	664266-*	812204-†	817204-†	665266-*
1½-11½			811241-†	816241-†	668306-*	812241-†	817241-†	669306-*
	1½-12		811242-†	816242-†	668306-*	812242-†	817242-†	669306-*
		1½	811244-†	816244-†	668306-*	812244-†	817244-†	669306-*
2-11½			811321-†	816321-†	676386-*	812321-†	817321-†	677386-*
	2½-12		811322-†	816322-†	676386-*	812322-†	817322-†	677386-*
		2	811324-†	816324-†	676386-*	812324-†	817324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

821161-thru 827324-

MARVEL R5 SERIES

Table II—Housing & Filter Element Numbers—Marvel R-5 Filters

GROUP A						GROUP B		
HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS			PHOSPHATE ESTER BASE FLUIDS					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
††NPTF	††SAE ST. TH'D.	SAE FLANGE	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS
1-11½			821161-†	826161-†	629206-*	822161-†	827161-†	630206-*
	1½-12		821162-†	826162-†	629206-*	822162-†	827162-†	630206-*
		1	821164-†	826164-†	629206-*	822164-†	827164-†	630206-*
1¼-11½			821201-†	826201-†	664266-*	822201-†	827201-†	665266-*
	1½-12		821202-†	826202-†	664266-*	822202-†	827202-†	665266-*
		1¼	821204-†	826204-†	664266-*	822204-†	827204-†	665266-*
1½-11½			821241-†	826241-†	668306-*	822241-†	827241-†	669306-*
	1½-12		821242-†	826242-†	668306-*	822242-†	827242-†	669306-*
		1½	821244-†	826244-†	668306-*	822244-†	827244-†	669306-*
2-11½			821321-†	826321-†	676386-*	822321-†	827321-†	677386-*
	2½-12		821322-†	826322-†	676386-*	822322-†	827322-†	677386-*
		2	821324-†	826324-†	676386-*	822324-†	827324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

††FOUR-BOLT PORT ADAPTERS ARE RECOMMENDED FOR MARVEL R5 FILTERS FOR 3000 PSI PRESSURES AND HIGHER.

SWITCH		BY-PASS				
Type	Side	LH or RH	None	10 psi	15 psi	25 psi
0	0	0	0000	1000	1500	2500
1	2	LH	0001	1001	1501	2501
1	2	RH	0002	1002	1502	2502
1	4	LH	0003	1003	1503	2503
1	4	RH	0004	1004	1504	2504

TYPE 1—Micro Switch BZE6-2RN.

When no by-pass is specified a 15 psi spring is used in colorator indicator unless otherwise specified.

NOTE: When Filters are provided with Warning Switches, last digit in By-Pass Numbers designate location of Warning Switch installation (1, 2, 3, or 4—see page 19).

Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

SELECTING AND ORDERING. Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Number Code:

- Housing Number (Single or Double Element) for fluid to be filtered. Select from Table I or Table II, Columns 4 and 5, Group A, or Columns 7 and 8, Group B.
- By-Pass and/or Warning Switch Number, from Table III.
- Filter Element Number for fluid selected, from Table I or Table II, Columns 6 and 9.
- Filter Element Media Number for desired degree of filtration, from Table IV.

R2 and R5 SINGLE ELEMENT and DOUBLE ELEMENT

(also available in non-indicating design)

811161- thru 827324-

R2 and R5 DIMENSIONS

NPTF	1-11½	1¼-11½	1½-11½	2-11½
SAE STR	1½-12	1¾-12	1⅞-12	2½-12
SAE FL	1	1¼	1½	2

DIMENSIONS INCHES - 1 ELEMENT				
C	4.25	5.12	5.62	6.50
D	2.38	2.88	3.12	3.50
E	3.75	4.50	5.00	6.00
EB	.375	.437	.500	.500
F	R2 R5	.62	.62	.75
G		1.75	2.00	2.50
T		3.00	3.62	4.00
* XC		6.00	8.88	9.06
* R2 R5		10.12	13.62	15.00
* INCREASE FOR EACH ADDITIONAL ELEMENT				
		5.12	7.62	7.62

WEIGHT LBS. SINGLE ELEMENT				
R2	16.25	27.00	39.25	61.25
R5	18.00	30.00	44.00	73.00

WEIGHT INCREASE FOR EACH ADDITIONAL ELEMENT				
R2	2.50	5.00	7.50	9.75
R5	4.00	8.25	11.25	19.50

DIMENSIONS SAE FLANGE PORTS

R2—SAE FLANGE				
	1	1¼	1½	2
AA	.75	1.00	1.06	1.06
GG	1.03	1.19	1.41	1.68
Q	2.06	2.31	2.75	3.06
Z	7/8-16	7/8-14	1/2-13	1/2-13

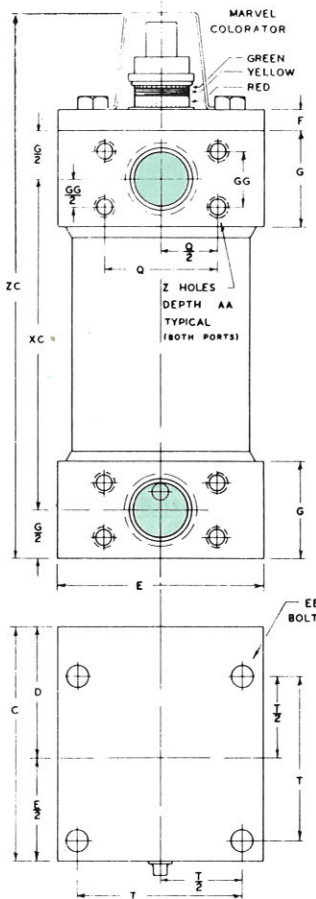
R5—SAE FLANGE				
	1	1¼	1½	2
AA	.75	1.00	1.06	.88
GG	1.09	1.25	1.44	1.75
Q	2.25	2.62	3.12	3.81
Z	7/8-14	1/2-13	5/8-11	3/4-10

EXAMPLE: A Marvel R2, Reverse Outlet, 1½" NPT Double Element Filter for Phosphate Ester Base Fluid, 25 psi By-Pass, LH Warning Switch on Side 2 (See Page 19), 200 Monel mesh filter element . . . is specified by the following:

(a)	(b)	(c)	(d)
Housing No.	By-Pass No.	Element No.	Media No.
817241-2501		669306-1220	

Change Dash to "M" for MarvelMag

To specify a MarvelMag Magnetic Element, simply insert "M" in place of dash shown above between Element No. and Media No. making the combined number "669306M1220". To order a replacement Filter Element only, specify combined Element-Media Number only.

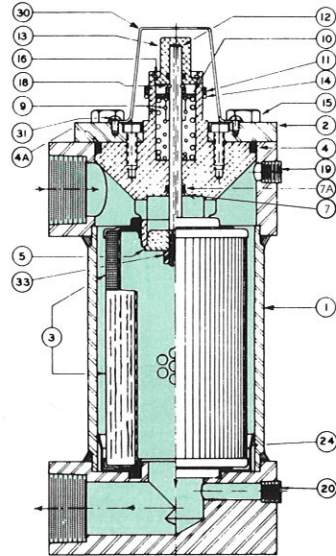


PATENT APPLIED FOR

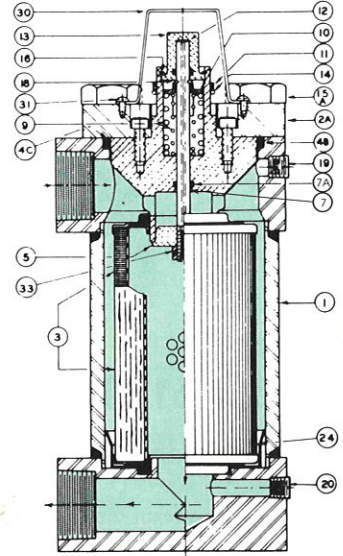
ITEM	PART NAME
1	HOUSING WELDMENT
2	COVER SUB-ASSEMBLY
3	ELEMENT ASSEMBLY
4	COVER SEAL
4A	BACK-UP WASHER
5	VALVE DISC*
7A	BACK-UP WASHER
7	STEM "O" RINGS
9	VALVE SPRING(S)
10	SPRING SEAT
11	INDICATOR FINGER
12	VALVE STEM
13	COLORATOR CAP
14	INDICATOR RING
15	COVER BOLTS
16	CAP RING
17	TWIN SLEEVE
18	STEM RING
19	FILL OR VENT PLUG
20	DRAIN PLUG
24	ELEMENT GUIDE
30	COLORATOR COVER
31	COLORATOR COVER SCREWS
33	STEM LOCKNUT

* Must be Purchased as Part of Cover Assembly.

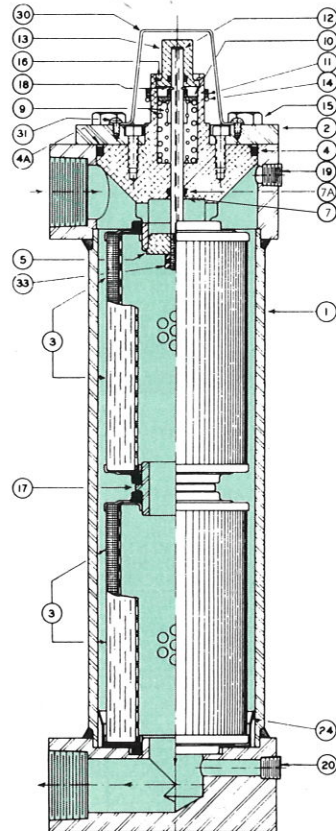
R2 SINGLE ELEMENT



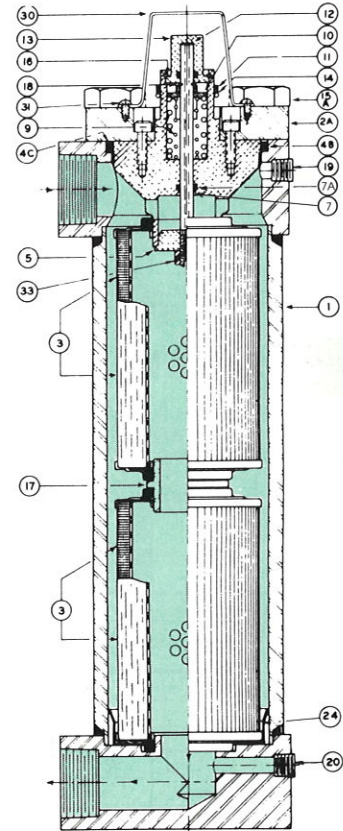
R5 SINGLE ELEMENT



R2 DOUBLE ELEMENT



R5 DOUBLE ELEMENT



Cover Design "A1" shown in R2 sectional view. Cover Design "A2" shown in R5 sectional view. Marvel Engineering Co. reserves the right to phase out Cover Design "A1" and furnish "A2". Name Plate will indicate "A1" or "A2".

R2 SERIES

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

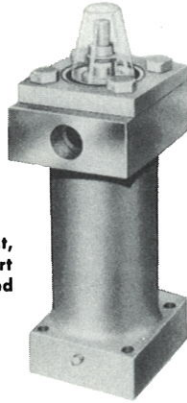
R5 SERIES

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

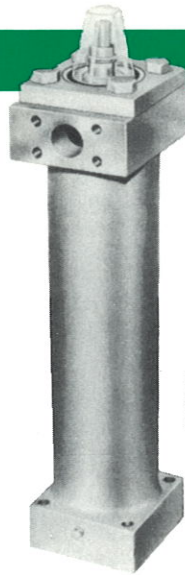
MARVEL FILTERS

COLORATOR INDICATING FILTERS

180° OUTLET



Single Element,
Threaded Port
Model Illustrated



Double Element,
SAE 4-Bolt Flange
Port Model Illustrated

For BY-PASS and WARNING SWITCH options, see Table III
For FILTER ELEMENT MEDIA options, see Table IV
For WARNING SWITCH MOUNTING, see Page 19

SWITCH			BY-PASS			
Type	Side	LH or RH	None	10 psi	15 psi	25 psi
0	0	0	0000	1000	1500	2500
1	2	LH	0001	1001	1501	2501
1	2	RH	0002	1002	1502	2502
1	4	LH	0003	1003	1503	2503
1	4	RH	0004	1004	1504	2504

TYPE 1—Micro Switch BZE6-2RN.

When no by-pass is specified a 15 psi spring is used in colorator indicator unless otherwise specified.

NOTE: When Filters are provided with Warning Switches, last digit in By-Pass Numbers designate location of Warning Switch installation (1, 2, 3, or 4—see page 19).

831161-thru 837324-

MARVEL R2 SERIES

Table I—Housing & Filter Element Numbers—Marvel R2 Filters

GROUP A						GROUP B		
HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS						PHOSPHATE ESTER BASE FLUIDS		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NPTF	SAE ST. TH'D.	SAE FLANGE	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS
1-11½			831161-†	836161-†	629206-*	832161-†	837161-†	630206-*
	1½-12		831162-†	836162-†	629206-*	832162-†	837162-†	630206-*
		1	831164-†	836164-†	629206-*	832164-†	837164-†	630206-*
1¼-11½			831201-†	836201-†	664266-*	832201-†	837201-†	665266-*
	1½-12		831202-†	836202-†	664266-*	832202-†	837202-†	665266-*
		1¼	831204-†	836204-†	664266-*	832204-†	837204-†	665266-*
1½-11½			831241-†	836241-†	668306-*	832241-†	837241-†	669306-*
	1½-12		831242-†	836242-†	668306-*	832242-†	837242-†	669306-*
		1½	831244-†	836244-†	668306-*	832244-†	837244-†	669306-*
2-11½			831321-†	836321-†	676386-*	832321-†	837321-†	677386-*
	2½-12		831322-†	836322-†	676386-*	832322-†	837322-†	677386-*
		2	831324-†	836324-†	676386-*	832324-†	837324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

841161-thru 847324-

MARVEL R5 SERIES

Table II—Housing & Filter Element Numbers—Marvel R5 Filters

GROUP A						GROUP B		
HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS						PHOSPHATE ESTER BASE FLUIDS		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
†† NPTF	†† SAE ST. TH'D.	SAE FLANGE	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS	SINGLE ELEMENT HOUSING NUMBERS	DOUBLE ELEMENT HOUSING NUMBERS	FILTER ELEMENT NUMBERS
1-11½			841161-†	846161-†	629206-*	842161-†	847161-†	630206-*
	1½-12		841162-†	846162-†	629206-*	842162-†	847162-†	630206-*
		1	841164-†	846164-†	629206-*	842164-†	847164-†	630206-*
1¼-11½			841201-†	846201-†	664266-*	842201-†	847201-†	665266-*
	1½-12		841202-†	846202-†	664266-*	842202-†	847202-†	665266-*
		1¼	841204-†	846204-†	664266-*	842204-†	847204-†	665266-*
1½-11½			841241-†	846241-†	668306-*	842241-†	847241-†	669306-*
	1½-12		841242-†	846242-†	668306-*	842242-†	847242-†	669306-*
		1½	841244-†	846244-†	668306-*	842244-†	847244-†	669306-*
2-11½			841321-†	846321-†	676386-*	842321-†	847321-†	677386-*
	2½-12		841322-†	846322-†	676386-*	842322-†	847322-†	677386-*
		2	841324-†	846324-†	676386-*	842324-†	847324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

††FOUR-BOLT PORT ADAPTERS ARE RECOMMENDED FOR MARVEL R5 FILTERS FOR 3000 PSI PRESSURES AND HIGHER.

Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

SELECTING AND ORDERING. Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Number Code:

- Housing Number (Single or Double Element) for fluid to be filtered. Select from Table I or Table II, Columns 4 and 5, Group A, or Columns 7 and 8, Group B.
- By-Pass and/or Warning Switch Number, from Table III.
- Filter Element Number for fluid selected, from Table I or Table II, Columns 6 and 9.
- Filter Element Media Number for desired degree of filtration, from Table IV.

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

R2 and R5 SINGLE ELEMENT and DOUBLE ELEMENT

(also available in non-indicating design)

831161- thru 847324-

NPTF	1-11 1/2	1 1/4-11 1/2	1 1/2-11 1/2	2-11 1/2
SAE STR	1 1/16-12	1 5/8-12	1 1/4-12	2 1/2-12
SAE FL	1	1 1/4	1 1/2	2
DIMENSIONS INCHES - 1 ELEMENT				
C	4.25	5.12	5.62	6.50
D	2.38	2.88	3.12	3.50
E	3.75	4.50	5.00	6.00
EB	.375	.437	.500	.500
F	R2 R5	.62	.62	.75
G	R2 R5	1.75	2.00	2.50
T	R2 R5	3.00	3.62	4.00
XC	R2 R5	6.00	8.88	9.06
ZC	R2 R5	10.12	13.62	15.00
* INCREASE FOR EACH ADDITIONAL ELEMENT				
	5.12	7.62	7.62	7.62

WEIGHT LBS. SINGLE ELEMENT				
R2	16.25	27.00	39.25	61.25
R5	18.00	30.00	44.00	73.00
WEIGHT INCREASE FOR EACH ADDITIONAL ELEMENT				
R2	2.50	5.00	7.50	9.75
R5	4.00	8.25	11.25	19.50

DIMENSIONS SAE FLANGE PORTS

R2 - SAE FLANGE				
	1	1 1/4	1 1/2	2
AA	.75	1.00	1.06	1.06
GG	1.03	1.19	1.41	1.68
Q	2.06	2.31	2.75	3.06
Z	3/8-16	7/16-14	1/2-13	1/2-13

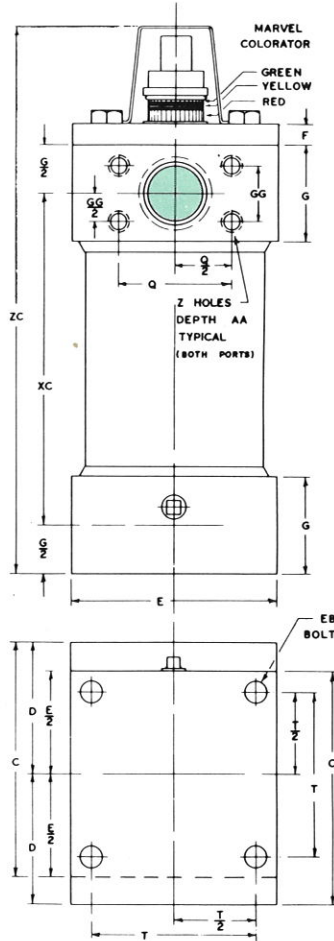
R5 - SAE FLANGE				
	1	1 1/4	1 1/2	2
AA	.75	1.00	1.06	.88
GG	1.09	1.25	1.44	1.75
Q	2.25	2.62	3.12	3.81
Z	7/16-14	1/2-13	5/8-11	3/4-10

EXAMPLE: A Marvel R5, 180° outlet, 1-5/16"-12 SAE, Single Element Filter for Hydraulic Oils, 15 psi By-Pass, 15 micron stainless steel . . . is specified by the following

(a)	(b)	(c)	(d)
Housing No.	By-Pass No.	Element No.	Media No.
841162-1500		629206-2215	

Change Dash to "M" for MarvelMag

To specify a MarvelMag Magnetic Element, simply insert "M" in place of dash shown above between Element No. and Media No. making the combined number "629206M2215". To order a replacement Filter Element only, specify combined Element-Media Number only.

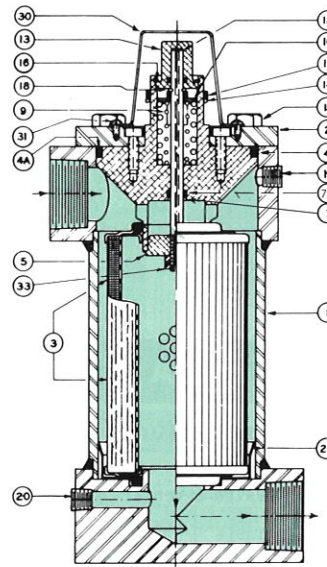


Patents Applied For

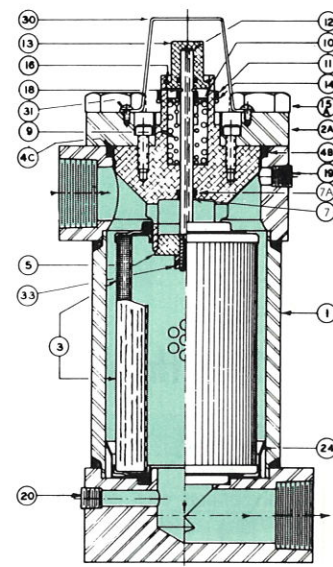
ITEM	PART NAME
1	HOUSING WELDMENT
2	COVER SUB-ASSEMBLY
3	ELEMENT ASSEMBLY
4	COVER SEAL
4A	BACK-UP WASHER
5	VALVE DISC*
7A	BACK-UP WASHER
7	STEM "O" RINGS
9	VALVE SPRING(S)
10	SPRING SEAT
11	INDICATOR FINGER
12	VALVE STEM
13	COLORATOR CAP
14	INDICATOR RING
15	COVER BOLTS
16	CAP RING
17	TWIN SLEEVE
18	STEM RING
19	FILL OR VENT PLUG
20	DRAIN PLUG
21	SAE "O" RINGS
24	COLORATOR COVER
30	COLORATOR COVER
31	COLORATOR COVER SCREWS
33	STEM LOCKNUT

*Must be Purchased as Part of Cover Assembly.

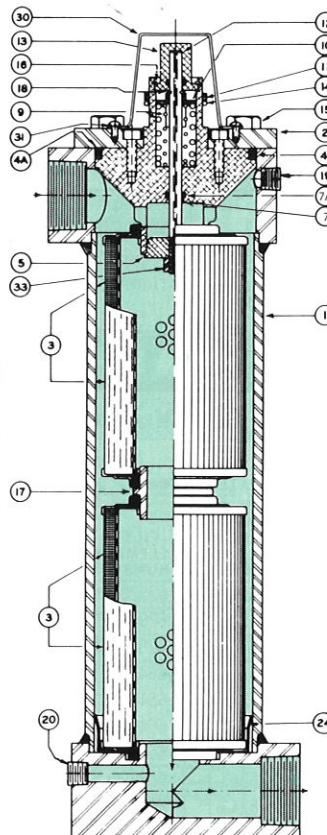
R2 SINGLE ELEMENT



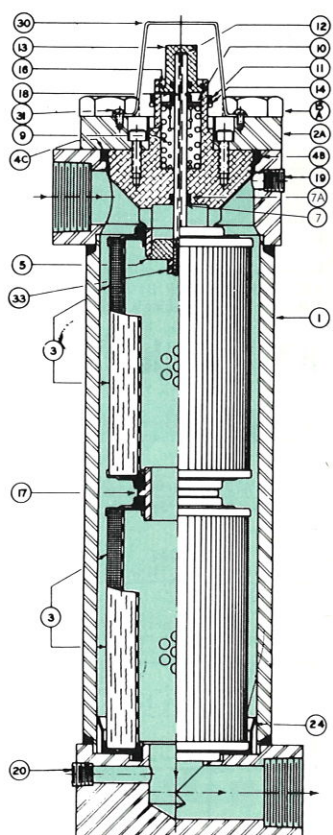
R5 SINGLE ELEMENT



R2 DOUBLE ELEMENT



R5 DOUBLE ELEMENT



Cover Design "A1" shown in R2 sectional view. Cover Design "A2" shown in R5 sectional view. Marvel Engineering Co. reserves the right to phase out Cover Design "A1" and furnish "A2". Name Plate will indicate "A1" or "A2".

R2 SERIES

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

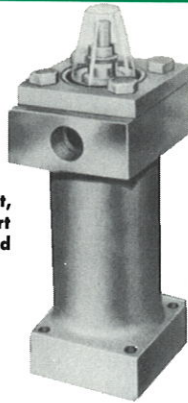
R5 SERIES

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

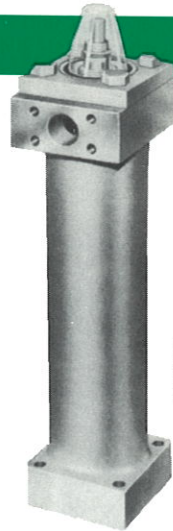
MARVEL FILTERS

COLORATOR INDICATING FILTERS

90° OUTLET



Single Element,
Threaded Port
Model Illustrated



Double Element,
SAE 4-Bolt Flange
Port Model Illustrated

For BY-PASS and WARNING SWITCH options, see Table III
For FILTER ELEMENT MEDIA options, see Table IV
For WARNING SWITCH MOUNTING, see Page 19

861161-thru 867324- MARVEL R2 SERIES

Table I—Housing & Filter Element Numbers—Marvel R2 Filters

GROUP A HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS						GROUP B PHOSPHATE ESTER BASE FLUIDS		
(1) NPTF	(2) SAE ST. TH'D.	(3) SAE FLANGE	(4) SINGLE ELEMENT HOUSING NUMBERS	(5) DOUBLE ELEMENT HOUSING NUMBERS	(6) FILTER ELEMENT NUMBERS	(7) SINGLE ELEMENT HOUSING NUMBERS	(8) DOUBLE ELEMENT HOUSING NUMBERS	(9) FILTER ELEMENT NUMBERS
1-11/2			861161-†	866161-†	629206-*	862161-†	867161-†	630206-*
	1 1/8-12		861162-†	866162-†	629206-*	862162-†	867162-†	630206-*
		1	861164-†	866164-†	629206-*	862164-†	867164-†	630206-*
1 1/4-11 1/2			861201-†	866201-†	664266-*	862201-†	867201-†	665266-*
	1 1/8-12		861202-†	866202-†	664266-*	862202-†	867202-†	665266-*
		1 1/4	861204-†	866204-†	664266-*	862204-†	867204-†	665266-*
1 1/2-11 1/2			861241-†	866241-†	668306-*	862241-†	867241-†	669306-*
	1 1/8-12		861242-†	866242-†	668306-*	862242-†	867242-†	669306-*
		1 1/2	861244-†	866244-†	668306-*	862244-†	867244-†	669306-*
2-11 1/2			861321-†	866321-†	676386-*	862321-†	867321-†	677386-*
	2 1/2-12		861322-†	866322-†	676386-*	862322-†	867322-†	677386-*
		2	861324-†	866324-†	676386-*	862324-†	867324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

871161-thru 877324- MARVEL R5 SERIES

Table II—Housing & Filter Element Numbers—Marvel R5 Filters

GROUP A HYDRAULIC OILS—COOLANTS—LUBRICANTS—WATER GLYCOLS						GROUP B PHOSPHATE ESTER BASE FLUIDS		
(1) ††NPTF	(2) †† SAE ST. TH'D.	(3) SAE FLANGE	(4) SINGLE ELEMENT HOUSING NUMBERS	(5) DOUBLE ELEMENT HOUSING NUMBERS	(6) FILTER ELEMENT NUMBERS	(7) SINGLE ELEMENT HOUSING NUMBERS	(8) DOUBLE ELEMENT HOUSING NUMBERS	(9) FILTER ELEMENT NUMBERS
1-11/2			871161-†	876161-†	629206-*	872161-†	877161-†	630206-*
	1 1/8-12		871162-†	876162-†	629206-*	872162-†	877162-†	630206-*
		1	871164-†	876164-†	629206-*	872164-†	877164-†	630206-*
1 1/4-11 1/2			871201-†	876201-†	664266-*	872201-†	877201-†	665266-*
	1 1/8-12		871202-†	876202-†	664266-*	872202-†	877202-†	665266-*
		1 1/4	871204-†	876204-†	664266-*	872204-†	877204-†	665266-*
1 1/2-11 1/2			871241-†	876241-†	668306-*	872241-†	877241-†	669306-*
	1 1/8-12		871242-†	876242-†	668306-*	872242-†	877242-†	669306-*
		1 1/2	871244-†	876244-†	668306-*	872244-†	877244-†	669306-*
2-11 1/2			871321-†	876321-†	676386-*	872321-†	877321-†	677386-*
	2 1/2-12		871322-†	876322-†	676386-*	872322-†	877322-†	677386-*
		2	871324-†	876324-†	676386-*	872324-†	877324-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

††FOUR-BOLT PORT ADAPTERS ARE RECOMMENDED FOR MARVEL R5 FILTERS FOR 3000 PSI PRESSURES AND HIGHER.

Type	SWITCH			BY-PASS			
	Side	LH or RH	0	None	10 psi	15 psi	25 psi
0	0	0	0000	1000	1500	2500	
1	2	LH	0001	1001	1501	2501	
1	2	RH	0002	1002	1502	2502	
1	4	LH	0003	1003	1503	2503	
1	4	RH	0004	1004	1504	2504	

TYPE 1—Micro Switch BZE6-2RN.

When no by-pass is specified a 15 psi spring is used in colorator indicator unless otherwise specified.

NOTE: When Filters are provided with Warning Switches, last digit in By-Pass Numbers designate location of Warning Switch installation (1, 2, 3, or 4—see page 19).

Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

SELECTING AND ORDERING. Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Number Code:

- Housing Number (Single or Double Element) for fluid to be filtered. Select from Table I or Table II, Columns 4 and 5, Group A, or Columns 7 and 8, Group B.
- By-Pass and/or Warning Switch Number, from Table III.
- Filter Element Number for fluid selected, from Table I or Table II, Columns 6 and 9.
- Filter Element Media Number for desired degree of filtration, from Table IV.

EXAMPLE: A Marvel R2, 90° Outlet, 1 1/2" SAE Flange Double Element Filter for Phosphate Ester Base Fluid, No By-Pass "RH" Warning Switch on Side 2 (See Page 19), 10-Micron Stainless Steel Elements . . . is specified by the following:

R2 and R5 SINGLE ELEMENT and DOUBLE ELEMENT

(also available in non-indicating design)

861161- thru 877324-

R2 and R5 DIMENSIONS

NPTF	1 - 11 1/2	1 1/4 - 11 1/2	1 1/2 - 11 1/2	2 - 11 1/2				
SAE STR	1 1/8 - 12	1 3/8 - 12	1 7/8 - 12	2 1/2 - 12				
SAE FL	1	1 1/4	1 1/2	2				
DIMENSIONS INCHES - 1 ELEMENT								
C	4.25	5.12	5.62	6.50				
D	2.38	2.88	3.12	3.50				
E	3.75	4.50	5.00	6.00				
EB	.375	.437	.500	.500				
F	R 2 R 5	.62 .62	.75 .75	1.00 1.00				
G	1.75	2.00	2.50	3.00				
J	1.25	1.50	1.75	1.75				
T	3.00	3.62	4.00	5.00				
⊙ XB	6.38	9.38	9.56	9.81				
⊙ ZB	R 2 R 5	9.62 13.12	14.25 14.25	15.44 15.44				
⊙ INCREASE FOR EACH ADDITIONAL ELEMENT <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>5.12</td> <td>7.62</td> <td>7.62</td> <td>7.62</td> </tr> </table>					5.12	7.62	7.62	7.62
5.12	7.62	7.62	7.62					

WEIGHT LBS. SINGLE ELEMENT				
R 2	14.00	23.50	33.75	48.75
R 5	15.75	26.50	38.50	60.50
WEIGHT INCREASE FOR EACH ADDITIONAL ELEMENT				
R 2	2.50	5.00	7.50	9.75
R 5	4.00	8.25	11.25	19.50

DIMENSIONS SAE FLANGE PORTS

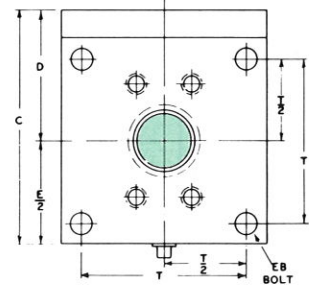
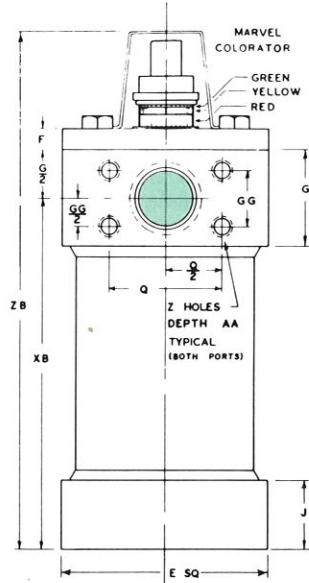
R2 - SAE FLANGE				
	1	1 1/4	1 1/2	2
AA	.75	1.00	1.06	1.06
GG	1.03	1.19	1.41	1.68
Q	2.06	2.31	2.75	3.06
Z	3/8 - 16	7/16 - 14	1/2 - 13	1/2 - 13

R5 - SAE FLANGE				
	1	1 1/4	1 1/2	2
AA	.75	1.00	1.06	.88
GG	1.09	1.25	1.44	1.75
Q	2.25	2.62	3.12	3.81
Z	7/16 - 14	1/2 - 13	5/8 - 11	3/4 - 10

(a)	(b)	(c)	(d)
Housing No.	By-Pass No.	Element No.	Media No.
867244-0002		669306-2210	

Change Dash to "M" for MarvelMag

To specify a MarvelMag Magnetic Element, simply insert "M" in place of dash shown above between Element No. and Media No. making the combined number *669306M2210*. To order a replacement Filter Element only, specify combined Element-Media Number only.

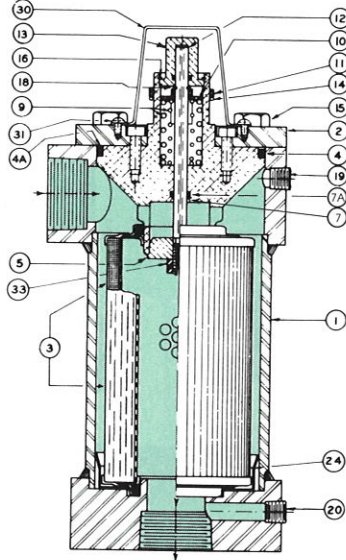


Patents Applied For

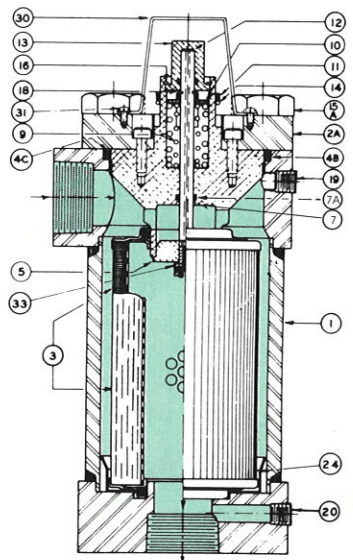
ITEM	PART NAME
1	HOUSING WELDMENT
2	COVER SUB-ASSEMBLY
3	ELEMENT ASSEMBLY
4	COVER SEAL
4A	BACK-UP WASHER
5	VALVE DISC*
7A	BACK-UP WASHER
7	STEM "O" RINGS
9	VALVE SPRING(S)
10	SPRING SEAT
11	INDICATOR FINGER
12	VALVE STEM
13	COLORATOR CAP
14	INDICATOR RING
15	COVER BOLTS
16	CAP RING
17	TWIN SLEEVE
18	STEM RING
19	FILL OR VENT PLUG
20	DRAIN PLUG
21	SAE "O" RINGS
24	COLORATOR COVER
30	COLORATOR COVER
31	COLORATOR COVER SCREWS
33	STEM LOCKNUT

*Must be Purchased as Part of Cover Assembly.

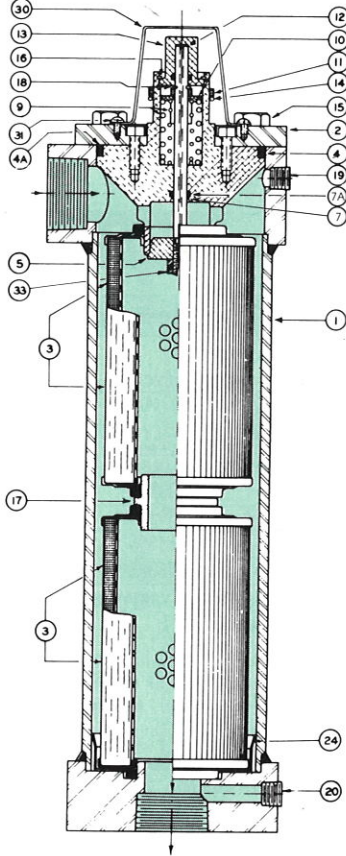
R2 SINGLE ELEMENT



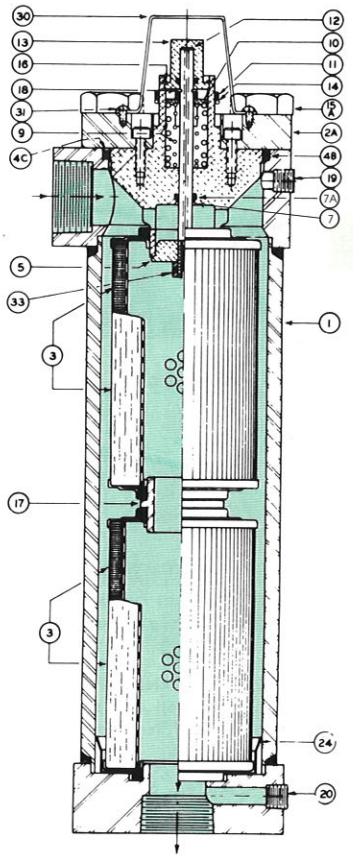
R5 SINGLE ELEMENT



R2 DOUBLE ELEMENT



R5 DOUBLE ELEMENT



Cover Design "A1" shown in R2 sectional view. Cover Design "A2" shown in R5 sectional view. Marvel Engineering Co. reserves the right to phase out Cover Design "A1" and furnish "A2". Name Plate will indicate "A1" or "A2".

R2 SERIES

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

R5 SERIES

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

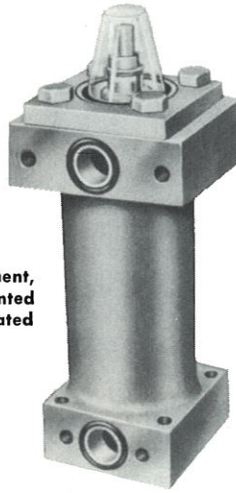
MARVEL FILTERS

COLORATOR INDICATING FILTERS

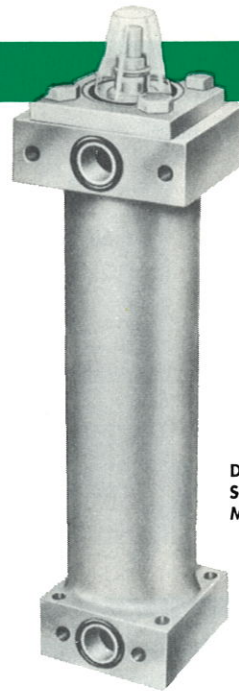
SUB-PLATE MOUNTED

For BY-PASS and WARNING SWITCH options, see Table III
For FILTER ELEMENT MEDIA options, see Table IV
For WARNING SWITCH MOUNTING, see Page 19

Single Element,
Sub-Plate Mounted
Model Illustrated



Double Element,
Sub-Plate Mounted
Model Illustrated



881168-thru 887328- MARVEL R2 SERIES

Table I—Housing & Filter Element Numbers—R2 Filters

GROUP A HYDRAULIC OIL—COOLANTS—LUBRICANTS—WATER GLYCOLS				GROUP B PHOSPHATE ESTER BASE FLUIDS		
(1) PORT I.D.	(2) SINGLE ELEMENT HOUSING NUMBERS	(3) DOUBLE ELEMENT HOUSING NUMBERS	(4) FILTER ELEMENT NUMBERS	(5) SINGLE ELEMENT HOUSING NUMBERS	(6) DOUBLE ELEMENT HOUSING NUMBERS	(7) FILTER ELEMENT NUMBERS
1.00	881168-†	886168-†	629206-*	882168-†	887168-†	630206-*
1.25	881208-†	886208-†	664266-*	882208-†	887208-†	665266-*
1.50	881248-†	886248-†	668306-*	882248-†	887248-†	669306-*
2.00	881328-†	886328-†	676386-*	882328-†	887328-†	677386-*

891168-thru 897328- MARVEL R5 SERIES

Table II—Housing & Filter Element Numbers—R5 Filters

GROUP A HYDRAULIC OIL—COOLANTS—LUBRICANTS—WATER GLYCOLS				GROUP B PHOSPHATE ESTER BASE FLUIDS		
(1) PORT I.D.	(2) SINGLE ELEMENT HOUSING NUMBERS	(3) DOUBLE ELEMENT HOUSING NUMBERS	(4) FILTER ELEMENT NUMBERS	(5) SINGLE ELEMENT HOUSING NUMBERS	(6) DOUBLE ELEMENT HOUSING NUMBERS	(7) FILTER ELEMENT NUMBERS
1.00	891168-†	896168-†	629206-*	892168-†	897168-†	630206-*
1.25	891208-†	896208-†	664266-*	892208-†	897208-†	665266-*
1.50	891248-†	896248-†	668306-*	892248-†	897248-†	669306-*
2.00	891328-†	896328-†	676386-*	892328-†	897328-†	677386-*

†SEE TABLE III FOR BY-PASS SETTINGS AND LIMIT SWITCH VARIATIONS

*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE IV)

SELECTING AND ORDERING: Here's the simple method of making your selection and properly specifying it on your order, through use of our Filter Number Code:

- (a) Housing Number (Single or Double Element) for fluid to be filtered. Select from Table I or Table II, Columns 2 and 3, Group A, or Columns 5 and 6, Group B.
- (b) By-Pass and/or Warning Switch Number, from Table III.
- (c) Filter Element Number for fluid selected, from Table I or Table II, Columns 4 and 7.
- (d) Filter Element Media Number for desired degree of filtration, from Table IV.

EXAMPLE: A Marvel R5, Sub-Plate Mounted 1.50" Port, Single Element Filter for Coolants, 25 psi By-Pass, "LH" Warning Switch on Side 3, 80 Mesh Stainless Steel Element... is specified by the following:

(a) Housing No.	(b) By-Pass No.	(c) Element No.	(d) Media No.
891248	-2503	668306	-1208

Change Dash
to "M" for
MarvelMag

To specify a MarvelMag Magnetic Element, simply insert "M" in place of dash shown above between Element No. and Media No. making the combined number "668306M1208". To order a replacement Filter Element only, specify combined Element-Media Number only.

TABLE III — R2 & R5 BY-PASS						
SWITCH			BY-PASS			
Type	Side	LH or RH	None	10 psi	15 psi	25 psi
0	0	0	0000	1000	1500	2500
1	2	LH	0001	1001	1501	2501
1	2	RH	0002	1002	1502	2502
1	4	LH	0003	1003	1503	2503
1	4	RH	0004	1004	1504	2504

TYPE 1—Micro Switch BZE6-2RN.

For switch mountings on 1" Ports R2 and R5 Sub-Plate mounted Filters consult Marvel Engineering Dept. When no by-pass is specified a 15 psi spring is used in colorator indicator unless otherwise specified.

NOTE: When Filters are provided with Warning Switches, last digit in By-Pass Numbers designate location of Warning Switch installation (1, 2, 3, or 4—see page 19).

Table IV — Filter Element Media Numbers		
Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

R2 SERIES

2000 psi (Max.)
General Service
3000 psi (Max.)
Non-Shock Service

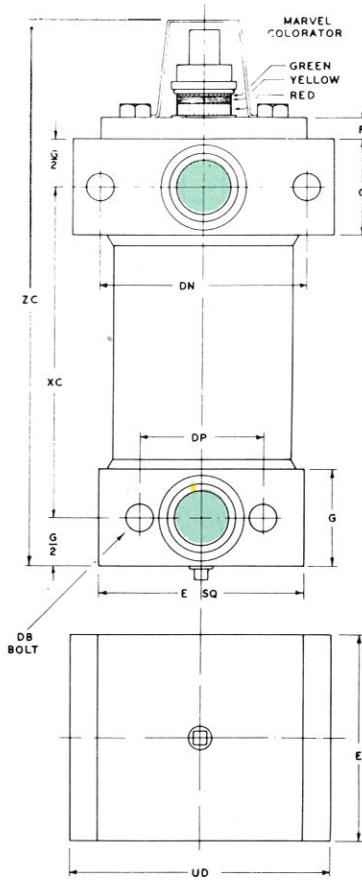
R5 SERIES

3000 psi (Max.)
General Service
5000 psi (Max.)
Non-Shock Service

R2 and R5 SINGLE ELEMENT and DOUBLE ELEMENT

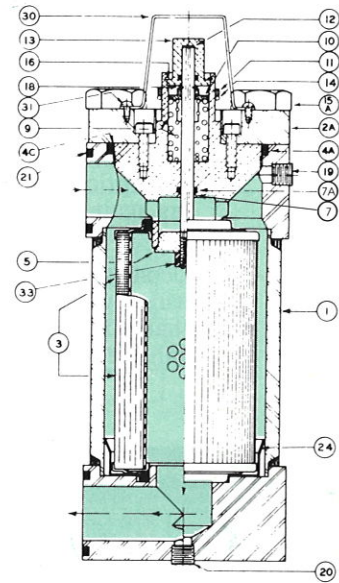
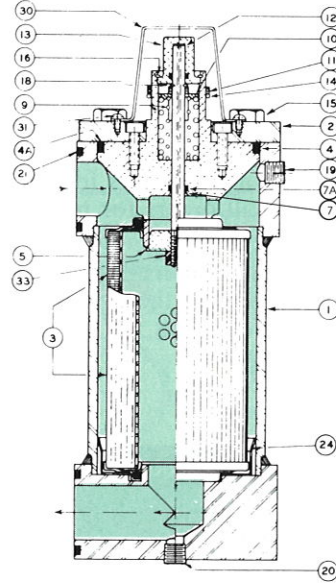
(also available in non-indicating design)

881168- thru 897328-



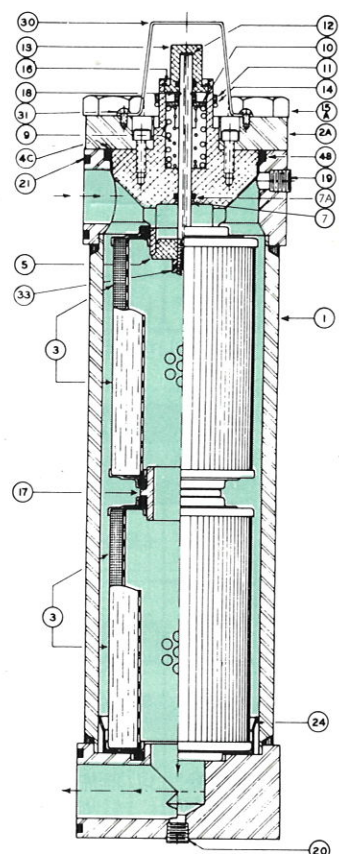
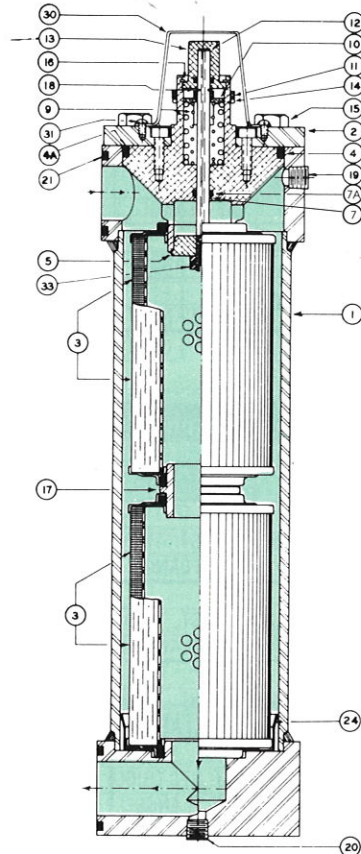
R2 SINGLE ELEMENT

R5 SINGLE ELEMENT



R2 DOUBLE ELEMENT

R5 DOUBLE ELEMENT



R2 and R5 DIMENSIONS

PORT I.D.	1.00	1.25	1.50	2.00
DIMENSIONS INCHES - 1 ELEMENT				
DB	.500	.625	.750	.750
DN	3.75	4.38	5.00	6.25
DP	2.25	2.62	3.12	3.50
E	3.75	4.50	5.00	6.00
F	R2	.62	.62	.75
	R5	.62	.62	.75
G	1.75	2.00	2.50	3.00
UD	4.75	5.62	6.50	7.75
* XC	6.00	8.88	9.06	9.56
* ZC	R2	10.12	13.62	15.00
	R5	10.12	13.62	15.00
* INCREASE FOR EACH ADDITIONAL ELEMENT				
	5.12	7.62	7.62	7.62

Patents Applied For

ITEM	PART NAME
1	HOUSING WELDMENT
2	COVER SUB-ASSEMBLY
3	ELEMENT ASSEMBLY
4	COVER SEAL
4A	BACK-UP WASHER
5	VALVE DISC*
7A	BACK-UP WASHER
7	STEM "O" RINGS
9	VALVE SPRING(S)
10	SPRING SEAT
11	INDICATOR FINGER
12	VALVE STEM
13	COLORATOR CAP
14	INDICATOR RING
15	COVER BOLTS
16	CAP RING
17	TWIN SLEEVE
18	STEM RING
19	FILL OR VENT PLUG
20	DRAIN PLUG
21	SAE "O" RINGS
24	COLORATOR COVER
30	COLORATOR COVER
31	COLORATOR COVER SCREWS
33	STEM LOCKNUT

WEIGHT	LBS.	SINGLE ELEMENT		
R2	16.75	26.00	40.25	64.50
R5	18.50	30.00	45.00	77.25
WEIGHT INCREASE FOR EACH ADDITIONAL ELEMENT				
R2	2.50	5.00	7.50	9.75
R5	4.00	8.25	11.25	19.50

* Must be Purchased as Part of Cover Assembly.

Cover Design "A1" shown in R2 sectional view. Cover Design "A2" shown in R5 sectional view. Marvel Engineering Co. reserves the right to phase out Cover Design "A1" and furnish "A2". Name Plate will indicate "A1" or "A2".

Interchangeable Filter Elements

629206- thru 687566-

MARVEL FILTERS

for MARVELBO-S
MARVELBO-R
MARVEL R2 & R5

Interchangeability of the same filter elements in different filter models offers important benefits and savings in the purchase and application of filters. The tables below show how a Marvel Filter Element size of your choice can be used in as many as 16 different combinations of filter model and port size. Obvious advantages are:

Simplified stocking and inventory

Easier ordering with less paperwork

The price savings of quantity purchases for one item as against a variety of small orders for many items

Elements always available for field replacement

Any Element for Marvel Indicating Filters can be replaced or serviced without disturbing any of the system piping. Note that MarvelMag magnetic elements are interchangeable with the non-magnetic elements.

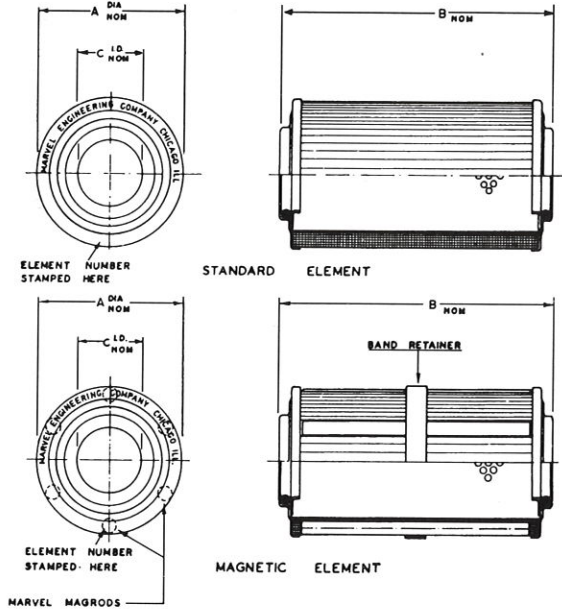


Table I—Elements for Hydraulic Oils, Coolants, Lubricants, Water Glycols

ELEMENT NUMBERS		DIMENSIONS			PORT TYPE	Marvelbo-S	Marvelbo-R	Marvel R2 & R5
Standard	MarvelMag (magnetic)	A	B	C				
629206*	629206M *	2.62	5.00	1.25	NPTF	1-11½	1-11½	1-11½
					SAE ST. TH'D.	1¼-12	1¼-12	1¼-12
					SAE FLANGE	1		1
664266*	664266M *	3.00	7.50	1.62	NPTF	1¼-11½	1¼-11½	1¼-11½
					SAE ST. TH'D.	1½-12	1½-12	1½-12
					SAE FLANGE	1¼		1¼
668306*	668306M *	3.38	7.50	1.88	NPTF	1½-11½	1½-11½	1½-11½
					SAE ST. TH'D.	1¾-12	1¾-12	1¾-12
					SAE FLANGE	1½		1½
676386*	676386M *	4.50	7.50	2.38	NPTF	2-11½	2-11½	2-11½
					SAE ST. TH'D.	2½-12	2½-12	2½-12
					SAE FLANGE	2		2
682466*	682466M *	5.50	10.00	2.88	NPTF	2½-8		
					SAE FLANGE	2½		
686566*	686566M *	6.50	10.00	3.50	NPTF	3-8 & 3½-8		
					SAE FLANGE	3 & 3½		

*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE III)

Table III—Filter Element Media Numbers

Number	Nom. Micron	Filter Element Media
1220	74	200 Mesh Stainless Steel
1215	105	150 Mesh Stainless Steel
1210	141	100 Mesh Stainless Steel
1208	180	80 Mesh Stainless Steel
1206	262	60 Mesh Stainless Steel
1205	308	50 Mesh Stainless Steel
1204	385	40 Mesh Stainless Steel
1203	546	30 Mesh Stainless Steel
1202	914	20 Mesh Stainless Steel
2210	10	8-10 Micron Stainless Steel
2215	15	10-15 Micron Stainless Steel
2225	25	25 Micron Stainless Steel
2240	40	40 Micron Stainless Steel
7103	3	3 Micron Paper
7110	10	10 Micron Paper
7120	20	20 Micron Paper
7203**	3	3 Micron Paper Mesh Inside
7210**	10	10 Micron Paper Mesh Inside
7220**	20	20 Micron Paper Mesh Inside
7303**	3	3 Micron Paper Mesh Outside
7310**	10	10 Micron Paper Mesh Outside
7320**	20	20 Micron Paper Mesh Outside

** Mesh reinforcement recommended for shock return lines, for pressure installations where by-pass valve does not open, or for momentary reverse flow pressure applications.

Table II—Elements for Phosphate Ester Base Fluids

ELEMENT NUMBERS		DIMENSIONS			PORT TYPE	Marvelbo-S	Marvelbo-R	Marvel R2 & R5
Standard	MarvelMag (magnetic)	A	B	C				
630206*	630206M *	2.62	5.00	1.25	NPTF	1-11½	1-11½	1-11½
					SAE ST. TH'D.	1¼-12	1¼-12	1¼-12
					SAE FLANGE	1		1
665266*	665266M *	3.00	7.50	1.62	NPTF	1¼-11½	1¼-11½	1¼-11½
					SAE ST. TH'D.	1½-12	1½-12	1½-12
					SAE FLANGE	1¼		1¼
669306*	669306M *	3.38	7.50	1.88	NPTF	1½-11½	1½-11½	1½-11½
					SAE ST. TH'D.	1¾-12	1¾-12	1¾-12
					SAE FLANGE	1½		1½
677386*	677386M *	4.50	7.50	2.38	NPTF	2-11½	2-11½	2-11½
					SAE ST. TH'D.	2½-12	2½-12	2½-12
					SAE FLANGE	2		2
683466*	683466M *	5.50	10.00	2.88	NPTF	2½-8		
					SAE FLANGE	2½		
687566*	687566M*	6.50	10.00	3.50	NPTF	3-8 & 3½-8		
					SAE FLANGE	3 & 3½		

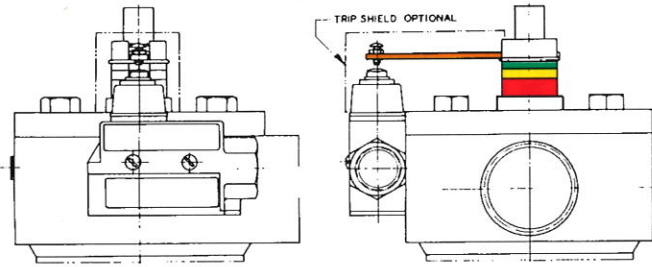
*INSERT FILTER ELEMENT MEDIA NUMBER (SEE TABLE III)



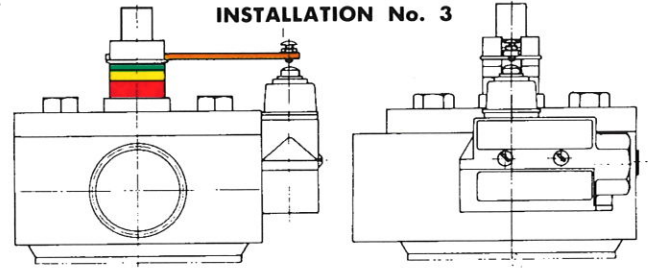
Marvel electric Warning Switches—optional on Marvel R2 and R5 Filters—operate with positive simplicity in conjunction with the Colorator Indicator to provide additional versatility in pinpointing condition of filter element. As Colorator Indicator actuates, it carries Warning Switch trip arm with it, causing it to activate Warning Switch at the precise time desired. Protective, tamper proof, Trip Arm Shield optional.

Warning Switch Mountings

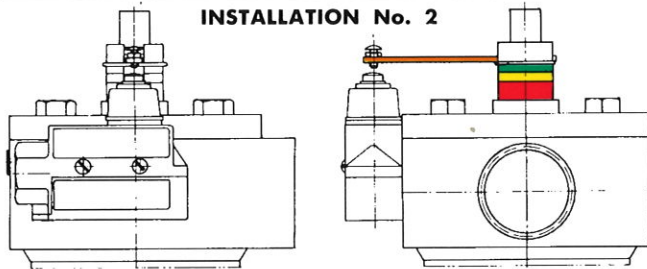
INSTALLATION No. 1



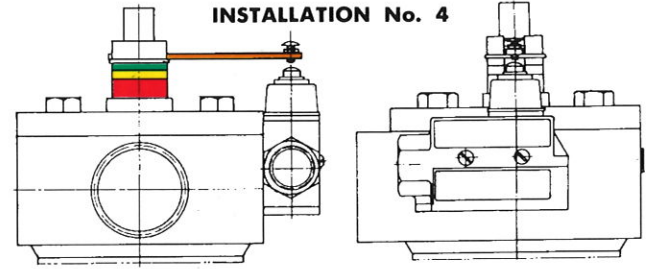
INSTALLATION No. 3



INSTALLATION No. 2

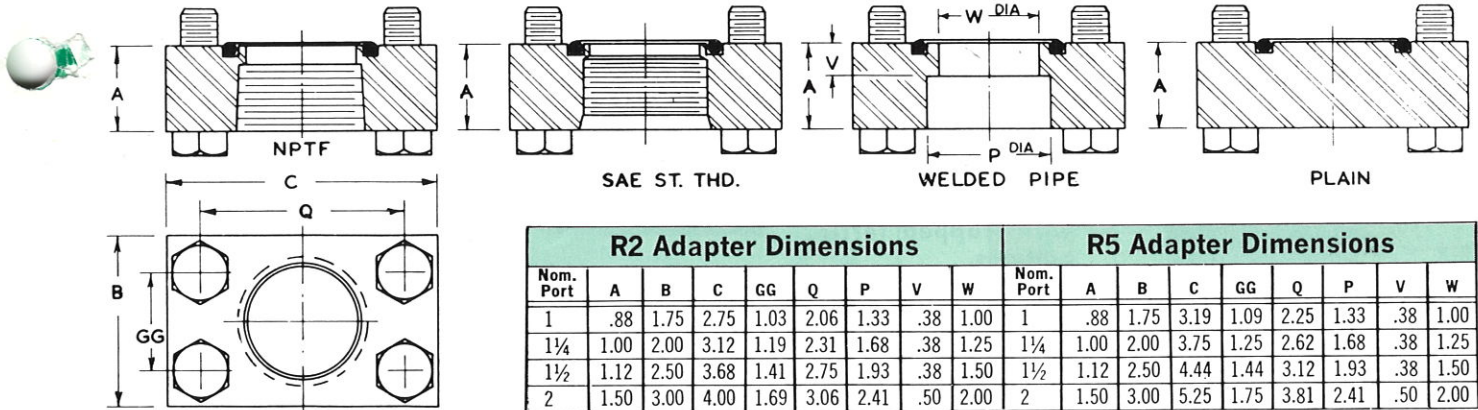


INSTALLATION No. 4



Marvel Port Adapters simplify piping connections and minimize system contamination

Port Adapters



***R2 Adapter Assembly Numbers**

PIPE THREAD		SAE STR. THREAD		WELDED PIPE		PLAIN	
Size	Number	Size	Number	Size	Number	Size	Number
1-11½	931161-1	1¼-12	931162-1	1	931169-1	1	931160-1
1¼-11½	931201-1	1⅝-12	931202-1	1¼	931209-1	1¼	931200-1
1½-11½	931241-1	1⅞-12	931242-1	1½	931249-1	1½	931240-1
2-11½	931321-1	2½-12	931322-1	2	931329-1	2	931320-1

****R5 Adapter Assembly Numbers**

WELDED PIPE				PLAIN			
SIZE	Number	Size	Number	Size	Number	Size	Number
1	941169-1	1	941160-1				
1¼	941209-1	1¼	941200-1				
1½	941249-1	1½	941240-1				
2	941329-1	2	941320-1				

*BUNA N "O" RING—931000 SERIES
 BUTYL "O" RING—932000 SERIES
 VITON A "O" RING—933000 SERIES

Note: R2 Adaptors may also be used on Marvelbo-S Suction Filters

**BUNA N "O" RING—941000 SERIES
 BUTYL "O" RING—942000 SERIES
 VITON A "O" RING—943000 SERIES

"O" Rings 90 Durometer

NOM. PORT	NOM. SIZE	BUNA N	BUTYL	VITON A
1	1⅞ x 1⅞	931160-3	932160-3	933160-3
1¼	1½ x 1¼	931200-3	932200-3	933200-3
1½	1⅞ x 2⅞	931240-3	932240-3	933240-3
2	2¼ x 2½	931320-3	932320-3	933320-3

Hex. Head Grade 5 Bolts

Nom. Port	Number	Size
1" R2	931160-15	⅜-16x1¼ Lg.
1¼ R2 & 1" R5	931200-15	7/16-14x1½ Lg.
1½ R2 & 1¼ R5	931240-15	½-13x1¾ Lg.
2" R2	931320-15	½-13x2¼ Lg.
1½" R5	941240-15	⅝-11x2 Lg.
2" R5	941320-15	¾-10x2¼ Lg.

Note: Adaptors not provided with filters unless specifically ordered.

MARVEL[®] FILTERS

* SYNCLINAL

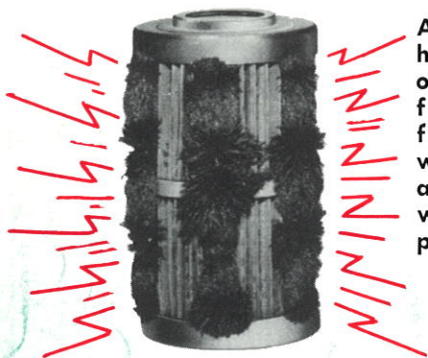
Two and one half times more active filtering area than equivalent size cylindrical type units . . . Longer operating periods between cleanings . . . No moving parts . . . These features of the Marvel Synclinal Filter have made it industry's top choice for dependable filtering of all types of liquids under the severest operating conditions.

To this, add fast, easy installation, cleaning, and maintenance . . . and it's easy to see why the Marvel

Synclinal Filters shown in these pages offer important savings in downtime, servicing and investment costs in providing maximum protection to all system components.

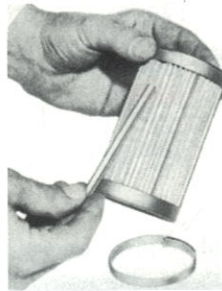
And it is the Synclinal Design itself which has made it possible for Marvel to offer industry another major advance in filtration as shown below . . . the unique MarvelMag Magnetic Shield, now available, at customer's option.

new
MARVELMAG*
MAGNETIC
FILTER SHIELD
... that completely surrounds and supplements Synclinal filter element!*



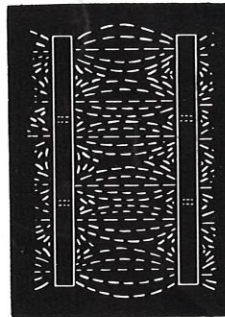
Actual photo showing how large flow areas of element remain free to provide full flow filtration even when magnetic rods are heavily loaded with trapped ferric particles.

Patents Applied For



SO EASY TO SERVICE!

"Lay-in . . . Lift-out" Magnetic rods. MarvelMag Shield is formed by individual magnetic rods placed in grooves on outer surface of Synclinal element. To clean rods, just lift out, wipe off, and lay them back in grooves. Slip-on spring clip keeps rods from being magnetically dislodged accidentally.



OVERLAPPING MAGNETIC FIELDS

The individual magnetic rods are full filter element length and their unique design provides powerful magnetic fields along entire length of element. The rods are equally spaced around exterior surface of element so that their magnetic fields overlap to cover full element circumference. This provides a complete magnetic shield around the outer (upstream) side of element in the area of lowest fluid velocity—where ferric particles are most effectively trapped and retained and where overall filtering efficiency is at maximum.

MarvelMag Optional on all Marvel Filters in this catalog. It is also available on most other filters in Marvel's Complete Line of Suction, Pressure and Return Line Models.

Better filtration, longer element life, hours saved in servicing . . . with amazing new MarvelMag elements. The harsh, cutting ferric contaminants (that do the most damage to system components) are instantly trapped by complete, outer MarvelMag Magnetic Shield BEFORE they can reach element, keeping it—and entire system—clean, undamaged and functioning at top efficiency for much longer periods without servicing. Ferric particles small enough to pass

through element and on into system are most speedily trapped and retained by the all-encircling magnetic shield. Generous flow areas between magnetic rods remain uncluttered, greatly increasing filter efficiency and life. The magnetic rods do not increase element dimensions, providing complete interchangeability of MarvelMag elements with non-magnetic elements.

*Trade names of Marvel Engineering Co.



NFPA

Solutions through motion technology

MEMBER

HYDRAULIC OILS - COOLANTS - LUBRICANTS - FIRE RESISTANT FLUIDS
 ADDITIONAL INFORMATION AVAILABLE ON REQUEST

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