

# Hersey® Meters Residential Fire Meter

## Residential Fire Service Meter

### Features

**APPLICATIONS:** The Hersey Residential Fire Meter (RFM) is specifically designed for use in residential fire protection systems or combination systems that supply domestic plumbing needs and residential sprinkler fire protection service when installed as specified in NFPA 13D or NFPA 13R; (Standards for the installation of sprinkler systems in one and two family dwellings, manufactured homes and residential occupancies up to and including four stories in height). The RFM utilizes Hersey's unique vertical turbine measuring element to measure flow rates comparable to traditional positive displacement meters, yet provides a measuring element that allows suspended particulate matter to pass through the element unobstructed when emergency flow requirements for water are demanded. No other meter provides more flexibility and dependability for measuring water accurately in residential fire suppression and domestic use applications.

**CONFORMANCE TO STANDARDS:** Each Hersey Residential Fire Service Meter is tested to assure compliance with ANSI/AWWA Standard C701, Class 1. Each male and female threaded RFM has UL Approval. EnviroBrass II® options conform to the NSF 61 Standard.

**CONSTRUCTION:** Hersey Residential Fire Water Meters consist of three basic parts: maincase; rotor assembly; and a permanently sealed register. Maincases and bottom plates are made of bronze for long service life. Rotor assemblies are thermoplastic, which is dimensionally stable and will not corrode. Retro Thrust® rotor design extends the life of the meter by dividing wear between two points: during low flow the tungsten carbide thrust bearing floats against a sapphire bearing surface; during high flow the stainless steel shaft gently contacts a second sapphire bearing. During medium flow, the rotor floats between the thrust bearings without contact. The measuring chamber is protected by an internal strainer with four times the effective straining area of the inlet pipe diameter. No external strainer is required. Fire service connections are easily recognized by the bright red register collar and lid on all visual read meters. Electronic meters are distinguished by the red collar and lense terminal cover on top of the Translator® register. Optional test ports are available on all 1-1/2" and 2" meters.

**REGISTER:** The permanently sealed register has a unique L seal and heat treated glass to eliminate dirt, moisture infiltration and lens fogging. The totalizing register has a straight-reading odometer type display, a 360° test circle with center sweep hand and a low flow (leak) detector.

All Hersey Meter models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems).

**OPERATION:** Water flows through the integral strainer and into the vertical turbine assembly. There, the direction of the water flow is directed by the hub into the rotor at the precise angle necessary for accurate measurement over the full range of flow rates. No straight pipe requirements apply before or after the meter. The turbine turns freely and rotates in direct proportion to the volume of water passing through the meter. The Hersey turbine operates more quietly than conventional disc or piston meters.

**MAINTENANCE:** All Hersey Residential Fire Meters are designed and manufactured to provide long service life. The register on all sizes can be replaced without removing the meter from the line. Modular design and economical internal parts allow for inexpensive, speedy rebuilds.

**CONNECTIONS:** Available with external (N.P.S.M.) straight pipe threads (ANSI B1.20.1) on 3/4" and 1" sizes; internal (NPT) pipe threads (ANSI B1.20.1) on 1-1/2" and 2" sizes.



### Materials and Specifications

- **MODEL** ..... Residential Fire Meter (RFM)
- **SIZES** ..... 3/4", 1", 1-1/2" and 2"
- **STANDARDS** .. Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C701, Class 1 Standard All Male and Female Threaded RFMS have UL Fire Service Approval
- **SERVICE**..... Cold water measurement with flow in only one direction
- **OPERATING FLOW RANGE**.....See Charts on page 6.21
- **ACCURACY** .....See Charts on page 6.21
- **MAXIMUM WORKING PRESSURE** .....175 PSI Meets Hydrostatic Pressure Testing to 875 PSI.
- **TEMPERATURE RANGE** ..... 33°F TO 100°F
- **MEASURING ELEMENT** ..... Rotor
- **STRAINER**.....4 times the inlet pipe diameter of straining surface area with .080 perforations.
- **REGISTER TYPE** ..... Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote reading units optional
- **METER CONNECTIONS**.....1/2", 3/4" and 1" external (NPSM) straight pipe threads, 1-1/2 size and 2" size available with internal thread (NPT) ends same nominal size as size of meter
- **MATERIALS** .....Maincase - bronze UNSC84400; Rotor assembly - thermoplastic; Strainer - stainless steel; Casing bolts - stainless steel ANSI B18.
- **OPTIONS** ..... Meter case - EnviroBrassII® UNSC89520, Spuds and Spools on 1-1/2" and 2" meters to accommodate standard AWWA laying lengths, Translator registers and AMR Systems

Residential Fire Service Meter  
Sizes 3/4", 1", 1-1/2", 2"

## Meter Registration

Meter Size	Initial Dial *	Capacity	Initial Dial *	Capacity
3/4"	10 Gallons	10 Million	1 Cubic Foot	1 Million
1"	10 Gallons	10 Million	1 Cubic Feet	1 Million
1-1/2"	100 Gallons	100 Million	10 Cubic Feet	10 Million
2"	100 Gallons	100 Million	10 Cubic Feet	10 Million

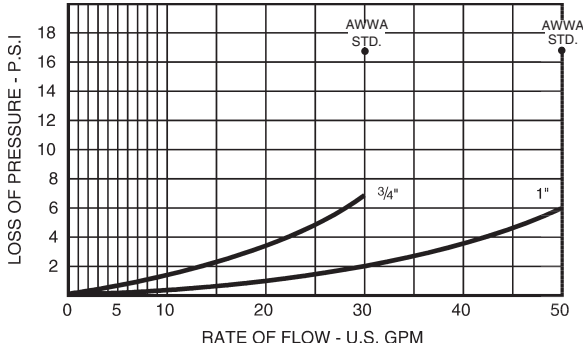
\* Registration equal to one full revolution of the sweep hand.

## Flow Characteristics

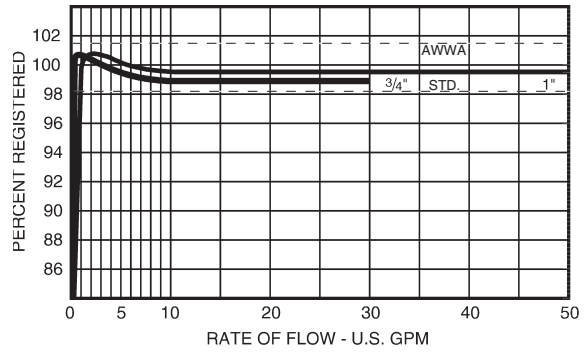
Meter Size	Typical Low Flow (95% Minimum)	Typical Operating Range (100% ± 2%)	Maximum Continuous Operation	Maximum Intermittent Flow
3/4"	1/2 GPM	1 to 30 GPM	25 GPM	35 GPM
1"	3/4 GPM	1-1/2 to 50 GPM	35 GPM	55 GPM
1-1/2"	1-1/2 GPM	2 to 100 GPM	70 GPM	110 GPM
2"	2 GPM	3 to 160 GPM	115 GPM	175 GPM

## Performance\*

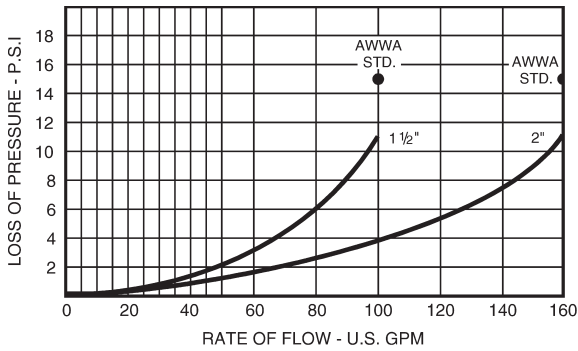
### Head loss - 3/4" and 1"



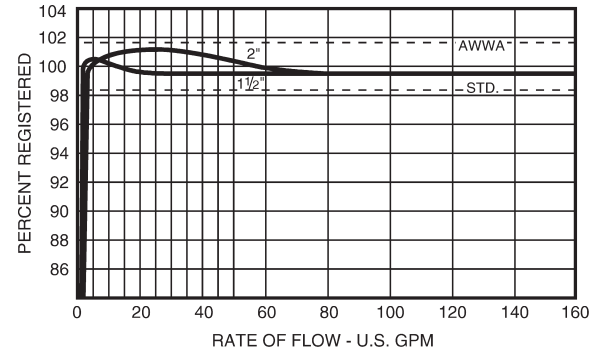
### Accuracy - 3/4" and 1"



### Head loss - 1-1/2" and 2"



### Accuracy - 1-1/2" and 2"

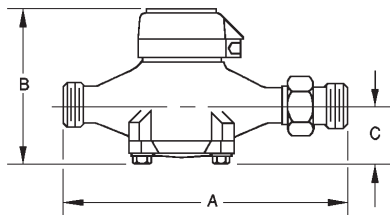


\*Performance curves are typical only and not a guarantee of performance.

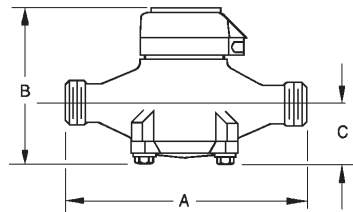
# Model RFM

Residential Fire Service Meter  
 Sizes 3/4", 1", 1-1/2", 2"

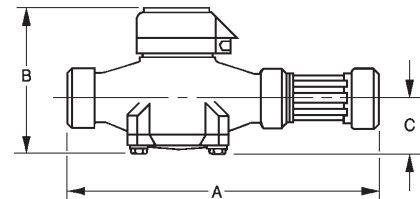
## Dimensions and weights



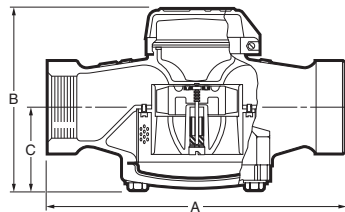
3/4" and 1" **STANDARD** RFM



3/4" and 1" **COMPACT** RFM



1-1/2" and 2" **STANDARD** RFM with  
 Internal NPT ends



1-1/2" and 2" **COMPACT** RFM with Internal NPT ends

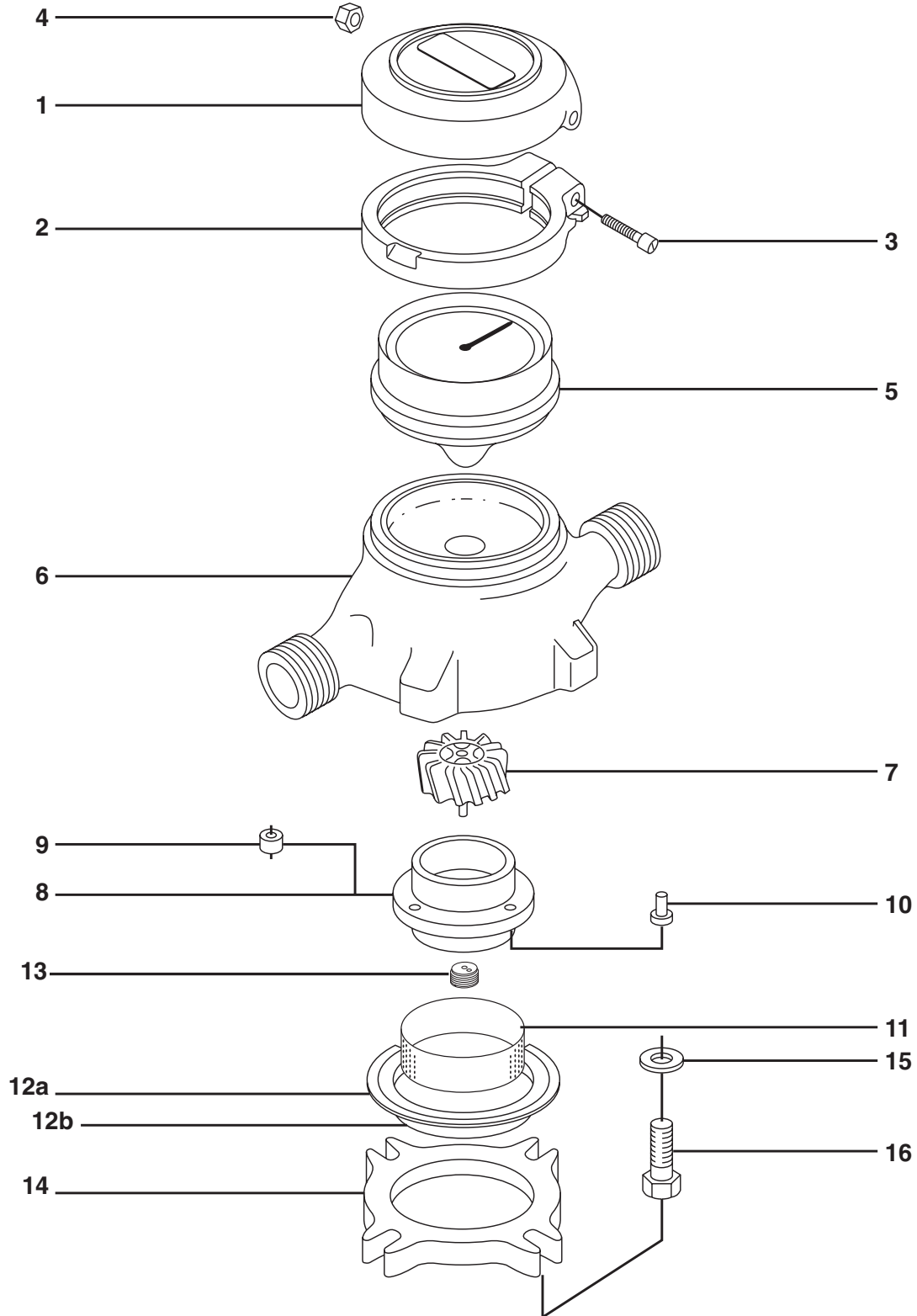
Model RFM

Meter Size	3/4"x1/2"	3/4"	3/4"x1"	1"	1-1/2"	2"
Ends	Threaded (screwed)					
Model	RFM30	RFM30A	RFM30B	RFM50	RFM100	RFM160
<b>Dimensions</b>						
A	9"	9"	9"	10-3/4"	12-5/8"	15-1/4"
AA *	7-1/2"	7-1/2"	7-1/2"	9"	9"	10-1/2"
B	5"	5"	5"	5-1/2"	5-3/4"	6-1/4"
C	1-13/16"	1-13/16"	1-13/16"	2-3/8"	2-3/8"	3"
D	N/A	N/A	N/A	N/A	N/A	N/A
E	N/A	N/A	N/A	N/A	N/A	N/A
F	N/A	N/A	N/A	N/A	N/A	N/A
Max. width	3-3/4"	3-3/4"	3-3/4"	4-1/4"	4-3/8"	5-3/8"
Net weight	6 (5*)	6 (5*)	6 (5*)	8 (7*)	11 (9*)	15 (14 *)

\* Compact length

NOTE: Meter couplings are optional and must be ordered separately. Weights are in pounds and are approximate.

## Models RFM-30, RFM 50, RFM 100 and RFM 160



Residential Fire Service Meter  
 Sizes 3/4", 1", 1-1/2", 2"

## Models RFM-30, RFM 50, RFM 100 and RFM 160

Ref. No.	Description	Model RFM-30	Model RFM-50	Model RFM-100	Model RFM-160
1	Lid (Plastic) Red	50377FS	50377FS	50377FS	50377FS
2	Red Clamp Band for Visual Register Red Clamp Band for Translator Register	50379FS B8602FS	50379FS B8602FS	50379FS B8602FS	50379FS B8602FS
3	Lid Seal Screw	19945	19945	19945	19945
4	Lid Nut	19999	19999	19999	19999
5	Sealed Registers (Specify unit of measurement)	See pages 7.7-7.8			
6	RFM 30 Top Case (7-1/2" length): 3/4" M.I.P. Ends	50466 (A)	-	-	-
6	RFM 50 Top Case (9" length): 1" M.I.P. Ends	-	50566FS (B)	-	-
6	RFM 100 Top Case (9" length): 1-1/2" F.I.P. Ends	-	-	50776FS (C)	-
6	RFM 160 Top Case (10-1/2" length): 2" F.I.P. Ends	-	-	-	50866FS (D)
7	Rotor	50471	50571	50771	50871
8	Inlet Hub	50467	50567	50767	50867
9	Lower Bushing	50374 (2)	50574 (2)	50574 (2)	-
10	Interior Screw	98394 (4)	98394 (4)	98394 (4)	98394 (4)
11	Strainer (Metal Ring)	50480	50580	50780	50880
12a	Rubber Gasket	-	B7647	50786	C5488
12b	Liner	50365	B7646	50766	C5491
13	Inlet Plug Assembly	50493	50493	50493	53105
14	Bottom (Bronze) only	C6592	C6593	C6594	D3594
15	Case Washer	AS7792 (4)	AS7792 (4)	98378 (4)	98378 (4)
16	Case Bolt	90010 (4)	90010 (4)	90073 (4)	90073 (4)
	Bushing Spacer	-	-	-	53114
	Bushing	-	-	-	54915 (2)
	Sapphire Thrust Bearing (Case)	98371	98371	98371	98371
	Complete Interior	50477FS	50577FS	50777FS	50872FS
	Bearing Adhesive*	-	-	-	-
	Adapters**: 3/4" Adapter 3/4" Adapter Washer 1" Adapter 1" Adapter Washer 1-1/2" Female Adapter 2" Female Adapter	95046 95014 - - - -	- - 95063 95064 - -	- - - - 95095 -	- - - - - 95195

A: Order 3/4" Adapter 95046 and Adapter Washer 95038 to replace standard 3/4" disc meter, 9" long.

B: Order 1" Adapter 95063 and Adapter Washer 95064 with Top Case 50566 to replace standard 1" disc meter, 10-3/4" long.

C: Order 1-1/2" Adapter 95095 with Top Case 50776 to replace 1-1/2" female end meter installed with union connections. Assemble to length of 12-5/8".

D: Order 2" Adapter 95195 with Top Case 50866 to replace standard 2" Female End disc meter, 15-1/4" long.

\*Purchase locally. Use a cyanoacrylic adhesive, such as Loctite Super Bonder #30-13, Eastman #916, PermaBond or Aron Alpha.

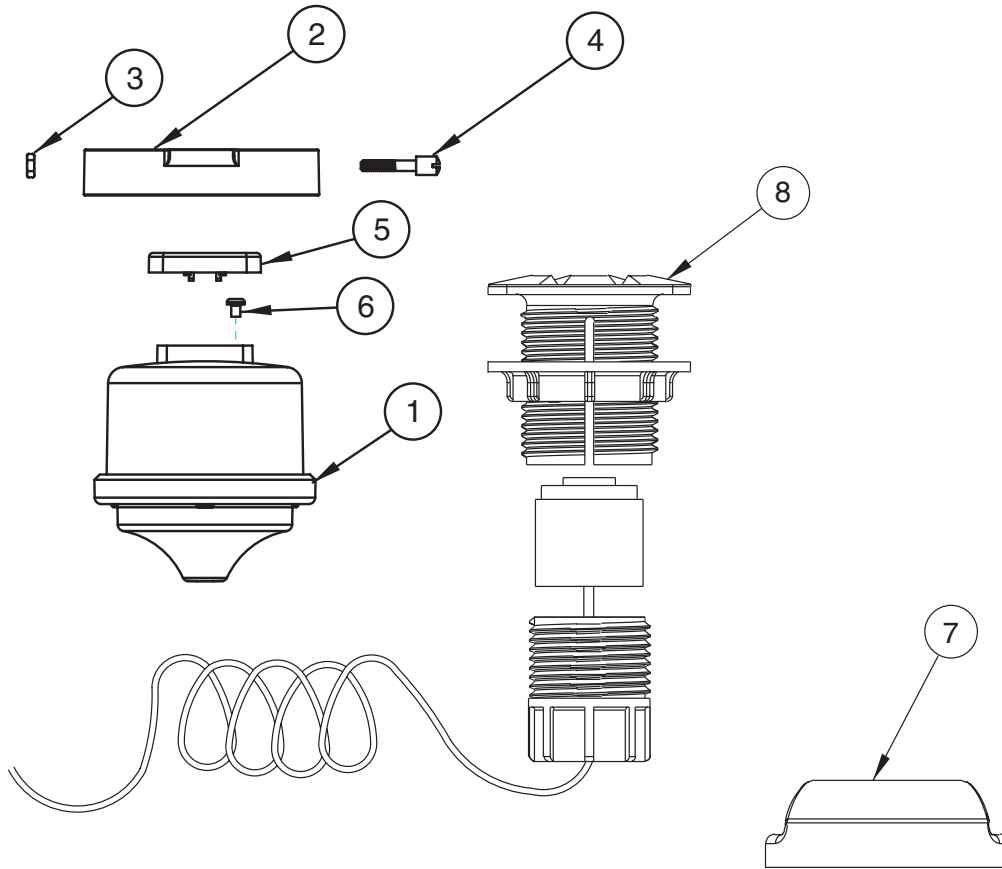
\*\*Must be ordered separately. Not an integral meter component.

Note: If more than one part is required, quantity is noted after part number (in parentheses).

## Visual Register Options

Cubic Feet				U.S. Gallons		
RFM Model	Register Part Numbers	Internal Ratio	Relation to other Registers	Register Part Numbers	Internal Ratio	Relation to other Registers
RFM-30	B79821FS	551.99	-4% (in relation to B79825)	B79813FS	738.92	-4% (in relation to B79817)
RFM-30	B79822FS	546.34	-3% (in relation to B79825)	B79814FS	731.88	-3% (in relation to B79817)
RFM-30	B79823FS	540.85	-2% (in relation to B79825)	B79815FS	723.79	-2% (in relation to B79817)
RFM-30	B79824FS	536.22	-1% (in relation to B79825)	B79816FS	715.86	-1% (in relation to B79817)
RFM-30	<b>B79825FS</b>	530.07	-	<b>B79817FS</b>	709.01	-
RFM-30	B79826FS	523.96	+1% (in relation to B79825)	B79818FS	702.61	+1% (in relation to B79817)
RFM-30	B79827FS	519.6	+2% (in relation to B79825)	B79819FS	694.85	+2% (in relation to B79817)
RFM-30	B79828FS	514.2	+3% (in relation to B79825)	B79820FS	688.55	+3% (in relation to B79817)
RFM-50	B79861FS	269.44	-4% (in relation to B79865)	B79851FS	360.58	-3% (in relation to B79854)
RFM-50	B79862FS	266.44	-3% (in relation to B79865)	B79852FS	356.41	-2% (in relation to B79854)
RFM-50	B79863FS	264.51	-2% (in relation to B79865)	B79853FS	353.17	-1% (in relation to B79854)
RFM-50	B79864FS	262.07	-1% (in relation to B79865)	B79854FS	349.42	-
RFM-50	<b>B79865FS</b>	258.83	-	B79855FS	345.93	+1% (in relation to B79854)
RFM-50	B79866FS	256.52	+1% (in relation to B79865)	B79856FS	342.53	+2% (in relation to B79854)
RFM-50	B79867FS	254	+2% (in relation to B79865)	B79857FS	339.04	+3% (in relation to B79854)
RFM-100	B79901FS	1973.95	-3% (in relation to B79904)	B79891FS	2664.16	-3% (in relation to B79894)
RFM-100	B79902FS	1951.68	-2% (in relation to B79904)	B79892FS	2646.98	-2% (in relation to B79894)
RFM-100	B79903FS	1935.27	-1% (in relation to B79904)	B79893FS	2605.61	-1% (in relation to B79894)
RFM-100	<b>B79904FS</b>	1912.65	-	<b>B79894FS</b>	2586.61	-
RFM-100	B79905FS	1901.98	+1% (in relation to B79904)	B79895FS	2554.55	+1% (in relation to B79894)
RFM-100	B79906FS	1882.77	+2% (in relation to B79904)	B79896FS	2526.66	+2% (in relation to B79894)
RFM-100	B79907FS	1862.97	+3% (in relation to B79904)	B79897FS	2505.78	+3% (in relation to B79894)
RFM-160	B79941FS	604.34	-3% (in relation to B79944)	B79931FS	808.31	-3% (in relation to B79934)
RFM-160	B79942FS	598.37	-2% (in relation to B79944)	B79932FS	800.5	-2% (in relation to B79934)
RFM-160	B79943FS	592.81	-1% (in relation to B79944)	B79933FS	792.41	-1% (in relation to B79934)
RFM-160	<b>B79944FS</b>	587.03	-	<b>B79934FS</b>	784.64	-
RFM-160	B79945FS	580.58	+1% (in relation to B79944)	B79935FS	775.87	+1% (in relation to B79934)
RFM-160	B79946FS	575.56	+2% (in relation to B79944)	B79936FS	768.47	+2% (in relation to B79934)

## Translator Register Options for RFM 30 to 160



Translator Encoder Register

Ref	Description	RFM-30	RFM-50	RFM-100	RFM-160
1	Translator Register * Gallons Cubic Feet  Specify Electronic Reading Value 4, 5, or 6 Wheel	D35231xxx D35232xxx	D35241xxx D35242xxx	D35251xxx D35252xxx	D35261xxx D35262xxx
2	Red Clamp Band (Plastic) Translator Only	B8602FS	B8602FS	B8602FS	B8602FS
3	Clamp Band Seal Nut	19999	19999	19999	19999
4	Clamp Band Seal Screw	19945	19945	19945	19945
5	Lens Terminal Cover Red	B8447FS	B8447FS	B8447FS	B8447FS
6	Terminal Lug Screw	98197 (3)	98197 (3)	98197 (3)	98197 (3)
7	Wall Pad	T1234	T1234	T1234	T1234
8	Pit Pad	T1240	T1240	T1240	T1240
9	TrueRead (not shown)	C6551G	C6551G	C6551G	C6551G
10	1,000' Spool of Wire (not shown)	AS755	AS755	AS755	AS755

\*Call Hersey Customer Service for appropriate Translator Register and AMR device part number.