

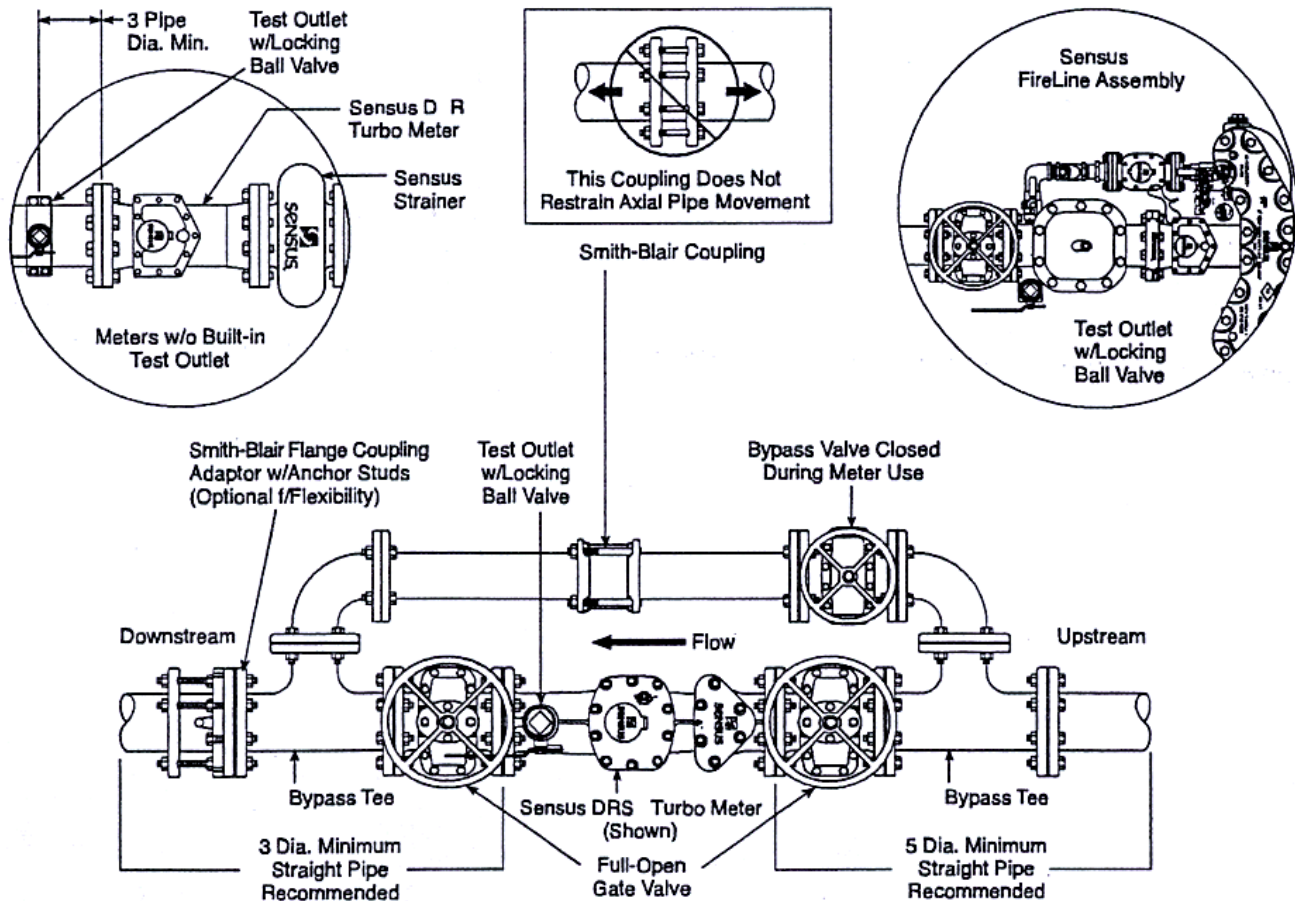
## Sensus W-Series Turbo Meters

To insure valid registration and proper performance, the following factors should be considered when installing Sensus Turbo Meters or other velocity style meters.

1. When installing Turbo Meters with a strainer, a minimum of five (5) pipe diameters of straight run of pipe or equivalent full open components is required upstream of the meter strainer inlet flange. A minimum of ten (10) pipe diameters of full open components should be used upstream of the meter's inlet flange when installed without a strainer. The deletion of a strainer, however, is not recommended on any meter. Full open flow components may consist of: straight pipe, full open gate valves, bypass tees and concentric reducers (1 nominal reduction only).
2. Do not install elbows, bends, nonconcentric reducers, check valves, back flow preventers and/or pressure reducing devices within ten (10) pipe diameters upstream or five (5) pipe diameters downstream of the meter.

3. Do not install butterfly valves within five (5) pipe diameters upstream or three (3) pipe diameters downstream of the meter.
4. Gate valves located immediately upstream of the meter setting are acceptable, provided they are fully open during meter service and are not used to throttle flow rates through the meter.

Accuracy levels may be determined by comparison accuracy testing either by using a Sensus Portable Large Meter Tester or by removing the suspect meter and testing it on a calibrated test bench. The Turbo Meter's adjusting vane is factory set and its position is marked for reference. Accuracy level adjustments may be accomplished by changing the adjusting vane setting. A linear accuracy adjustment of  $\pm 3\%$  is typical within the normal operating range of the Turbo Meter.



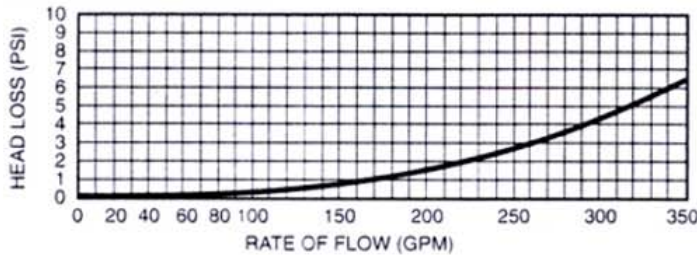
AUTHORIZED SENSUS DISTRIBUTOR

# SERIES "W" TURBO METERS

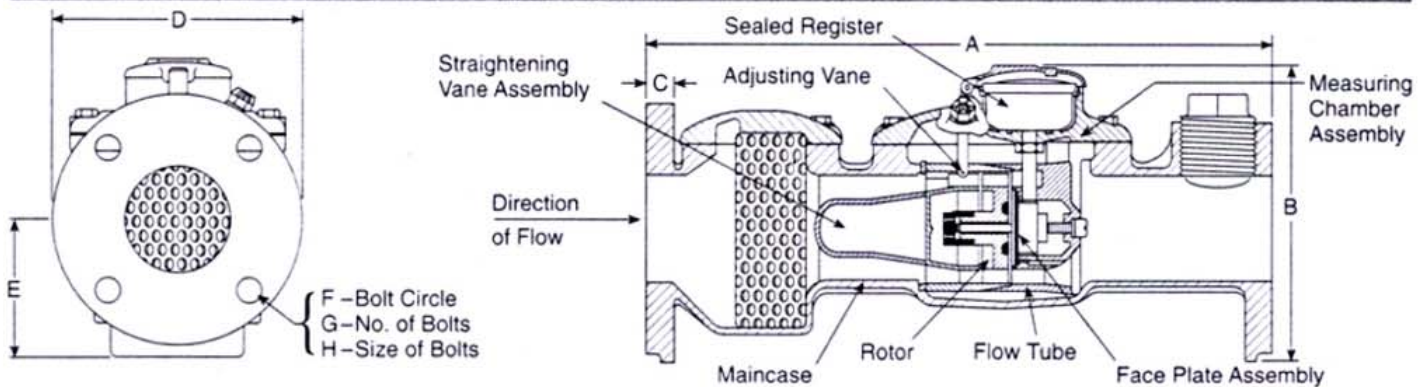
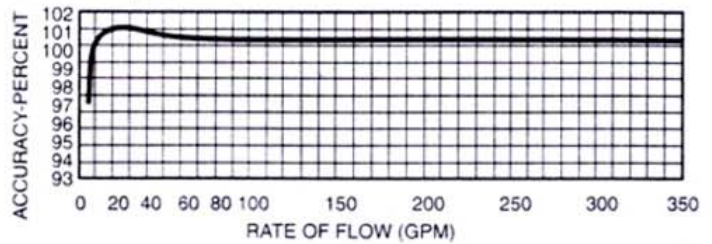
## MODEL W-350 ECRS

Bronze Magnetic Drive Flanged Ends Size 3" (DN 80mm)

Head Loss Curve



Accuracy Curve



Meter and Pipe Size	Normal Operating Range GPM Minimum Maximum		Connections	Dimensions							Net Weight	Ship- ping Weight	
				A *	B	C	D	E	F	G			H
3" DN 80mm	5 1.1m <sup>3</sup> /h	350 80m <sup>3</sup> /h	Flanged	19"	8-3/4"	3/4"	7-1/2"	4"	6"	4	5/8"	53 lbs.	60 lbs.
				485mm	222mm	19mm	190mm	102mm	153mm	4	16mm	24 kg	28 kg

① For continuous flows; 450 GPM (100m<sup>3</sup>/h) maximum for intermittent flows.

## Remote Systems—For use with all sizes of Invensys Water Meters

All Invensys AMR systems work with the same absolute encoder Electronic Communications Registers (ECR), enabling the utility to mix and match or easily move from one system to another without changing registers for each.

**The TouchRead<sup>®</sup> Automated Meter Reading and Billing System**—is a multi-purpose encoder remote system suitable for indoor and/or outdoor use. The ECR Register uses a wired connection between the meter and an outside remote for inside set meters—or a pitlid mounted module, enabling underground meters to be read automatically without opening the meter box or vault. All wired connections and terminals of the TouchRead PitLid (TR/PL) modules and registers are fully sealed at the factory using a special process to ensure protection from water infiltration. The connection terminals of ECR/WP registers are also factory sealed.

Meters equipped for TouchRead System reading can be read with a visual reading device, stand alone AutoGun, and/or reading gun with an AutoRead Hand-Held Device. For more information on TouchRead System equipment refer to bulletins AMR-TR, AMR-401, AMR-403, AMR-312 and EXSUMHH.

**PhonRead<sup>®</sup> AMR**—is a reliable telephone based call-in system that does not require batteries for operation. It also does not require equipment to be installed at telephone company facilities. PhonRead Meter Interface Units (MIU)

automatically call "in" to the utility office for transferring meter reading data from the meter site to a PC. PhonRead is a transparent AMR system that does not interfere with customers' telephone service. For more information refer to bulletins AMR-PR and AMR-302.

**RadioRead<sup>®</sup> AMR**—uses superior Direct Sequence Spread Spectrum modulation to provide reliable, safe and virtually interference free radio-based transmission of reading data from underground or inside-set meters that are equipped with Meter Transceiver Units (MXU). A choice of meter reading options is available. A radio frequency hand-held device (RF-HHD) can be used by a meter reader on foot. The RF-HHD can also be used to collect readings from TouchRead equipped meters, or for manual meter reading entries. A more powerful Vehicle Transceiver Unit (VXU) can be used in any car or truck to read meters while on the move. (A dedicated meter reading vehicle is not required.) For more information refer to bulletins AMR-RR, AMR-301 and AMR-303, and AMR-401.

**MultiRead<sup>®</sup> Port Expanders**—can provide the capability to connect multiple ECR equipped meters to a single PhonRead MIU or RadioRead MXU to save the utility time and money for installations such as apartment complexes and shopping centers. Refer to bulletin AMR-305, AMR-306 and AMR-308.



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Toll Free: 1-800-888-2403  
Web site: [www.ims.invensys.com](http://www.ims.invensys.com)  
select North American Water  
Email: [h2oinfo@ims.invensys.com](mailto:h2oinfo@ims.invensys.com)

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\* See page 3 for additional meter sizes and lengths.

## SERIES "W" TURBO METERS

SIZE:	MODEL:	LENGTH:
3" TURBO	W-350 ECR <b>S</b>	19"
3"	W-350 ECR	12"
2"	W-160 ECR <b>S</b>	17"
2"	W-160 ECR	10" FLANGED 12" SCREWED
1-1/2"	W-120 ECR <b>S</b>	13"
1-1/2"	2-120 ECR	13"

### NOTE:

1. **S** = STRAINER
2. ALLOW 1/8" PER GASKET