5/6B/91
5 December 2003

Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Notification of Change

Certificate of Approval No 5/6B/91

Change No 2

The following change is made to the approval documentation for the

Brooks Model Parity Turbine Bulk Flowmetering System

submitted by Fisher Rosemount Pty Ltd
471 Mountain Highway
Bayswater VIC 3153.

In Technical Schedule No 5/6B/91 dated 29 December 1995, clause **1. Description of Pattern** is amended by adding the following after the first paragraph:

"Instruments may also be known as a Daniel model Parity turbine flowmeter."

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

5/6B/91
3 December 2003

Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Notification of Change

Certificate of Approval No 5/6B/91

Change No 1

The following change is made to the approval documentation for the

Brooks Model Parity Turbine Bulk Flowmetering System

submitted by Fisher Rosemount Pty Ltd
471 Mountain Highway
Bayswater VIC 3153.

In Certificate of Approval No 5/6B/91 dated 29 December 1995, the Condition of Approval referring to the expiry of the approval should be amended to read:

"This approval expires in respect of new instruments on **1 April 2004**. "

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

National Standards Commission

Certificate of Approval

No 5/6B/91

Issued under Regulation 9
of the
National Measurement (Patterns of Measuring Instruments) Regulations

This is to certify that an approval for use for trade has been granted in respect of the

Brooks Model Parity Turbine Bulk Flowmetering System

submitted by Fisher Rosemount Pty Ltd
471 Mountain Highway
Bayswater VIC 3153.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

CONDITIONS OF APPROVAL

This approval is subject to review on or after 1 June 2000.
This approval expires in respect of new instruments on 1 June 2001.

Instruments purporting to comply with this approval shall be marked NSC No 5/6B/91 and only by persons authorised by the submittor.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

..../2

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with the Commission's Document 106.

DESCRIPTIVE ADVICE

Pattern: approved 24 May 1995

- A Brooks model Parity 100 mm turbine bulk flowmetering system.

Variants: approved 24 May 1995

1. As a loading-rack flowmetering system.

2. With a Brooks model Parity 75 mm turbine flowmeter.

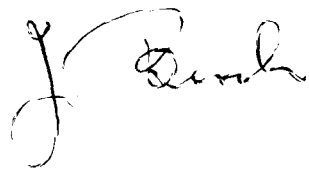
Technical Schedule No 5/6B/91 describes the pattern and variants 1 & 2.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 5/6B/91 dated 29 December 1995
Technical Schedule No 5/6B/91 dated 29 December 1995 (incl. Test Procedure)
Figures 1 to 5 dated 29 December 1995

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.



National Standards Commission

TECHNICAL SCHEDULE No 5/6B/91

Pattern: Brooks Model Parity Turbine Flowmetering System.

Submittor: Fisher Rosemount Pty Ltd
471 Mountain Highway
Bayswater VIC 3153.

1. Description of Pattern

A bulk flowmetering system using a Brooks model Parity turbine flowmeter of 100 mm nominal bore and which is approved for use with liquids having a kinematic viscosity between 0.5 and 12.5 mm^2/s.

The system is approved for use over a flow rate range from 490 L/min to 4900 L/min for normal operation. It may be used for short periods up to an extended maximum flow rate of 5392 L/min. The minimum quantity is 1000 litres.

1.1 Pipeline Flowmetering System (Figure 1)

(i) Tank

A supply tank which may be situated either above or below ground.

(ii) Pump

The pump is fitted in a **suction head** (flooded suction) installation, i.e. below the liquid level in the supply tank (Figure 1).

Positive displacement type, centrifugal type, or submersible turbine type pumps may be fitted.

(Systems which incorporate submersible turbine type pumps may in addition include centrifugal type pumps fitted above the liquid level in the supply tank as supplementary pumps.)

If the pump is not for the exclusive use of the flowmeter the flow rate through the meter must stay within the appropriate flow rate range for all combinations of alternative uses of the pump.

The system is constructed with the meter operating at sufficient back-pressure in, and immediately downstream of, the meter to minimise vaporisation.

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(iii) Non-return Valve

A non-return valve between the pump and the meter or an arrangement of the components and piping to keep the system full of liquid at all times.

(iv) Gas Purger/Strainer

A gas purger/strainer assembly fitted as close as practical to the meter inlet (Figures 1 and 2). The gas purger/strainer assembly may be modified for use as a strainer only where the tank has automatic alarming of low-liquid level, or has a float-operated shut-off valve in the pump supply, or has other means to prevent gas entering the system.

(v) Straightening Elements

Either:

(a) The meter is installed between straightening elements (as specified in AS 2651-1983 for *Liquid hydrocarbons - volumetric measurement by turbine meter systems*) consisting of flow conditioners of at least 10 pipe diameters and 5 pipe diameters in length, installed respectively upstream and downstream of the meter. The upstream conditioner includes straightening vanes; or

(b) A Brooks flow conditioning plate installed directly to the inlet of the meter (Figure 2).

(vi) Meter

A Brooks model Parity 100 mm turbine flowmeter (Figures 3 and 4) with single or dual pick-up coils for producing an electrical output signal.

The meter may be mounted horizontally or vertically (Figures 1 and 2). When mounted vertically, the straightening elements are also vertical.

Provision shall be made for fitting a pressure gauge downstream of the meter.

(vii) Indicating System

The output signal from the meter is interfaced via a preamplifier to a Commission-approved Contrec model 1010 bulk flowmetering system controller (as described in the documentation of NSC approval No S313), or any other compatible Commission-approved electronic indicator/controller which may or may not incorporate multi-point linearisation and volume conversion for temperature facilities.

(viii) Transfer Device

A transfer device in the form of a positive shut-off component such as a manually or automatically-operated control valve located downstream of the meter with no intermediate outlet.

1.2 Markings

Instruments are marked with the following data, together in the one location:

Manufacturer's name or mark	
Meter model	
Serial number	
NSC approval number	5/6B/91
Maximum flow rate	..... L/min
Minimum flow rate	..... L/min
Minimum quantity	 L
Maximum operating pressure	..... kPa
Viscosity range or type of liquid for which the meter is verified	

1.3 Sealing and Verification/Certification Provision

No sealing is required for the meter. Provision shall be made for sealing the indicator/controller as described in its NSC approval documentation.

Provision is made for a verification/certification mark to be applied.

2. Description of Variants

2.1 Variant 1

As a loading-rack flowmetering system (Figure 5) which is similar to the pipeline system except that the control valve is installed at or upstream of the transfer device, which is one of the following:

(i) Top-loading arrangement - the highest point of the pipework forms a weir at a fixed level from which the delivery pipe drains to the outlet for all configurations of the hose or loading arm whilst in operation. A syphon breaker is installed to ensure complete draining of the pipework downstream of the weir.

Alternatively, an anti-drain valve which retains a pressure of not less than 55 kPa may be installed at the delivery point of the pipework or hose; or

(ii) Bottom-loading arrangement - a dry-break coupling located at the delivery point of the pipework or hose.

2.2 Variant 2

With a Brooks model Parity turbine flowmeter of 75 mm nominal bore and which is approved for use over a flow rate range from 265 to 2650 L/min for normal operation. It may be used for short periods up to an extended maximum flow rate of 3445 L/min. The minimum quantity is 1000 litres.

TEST PROCEDURE

Instruments should be tested in accordance with any tests included in the approval documentation for indicator, and in accordance with any relevant tests specified in the Inspector's Handbook.

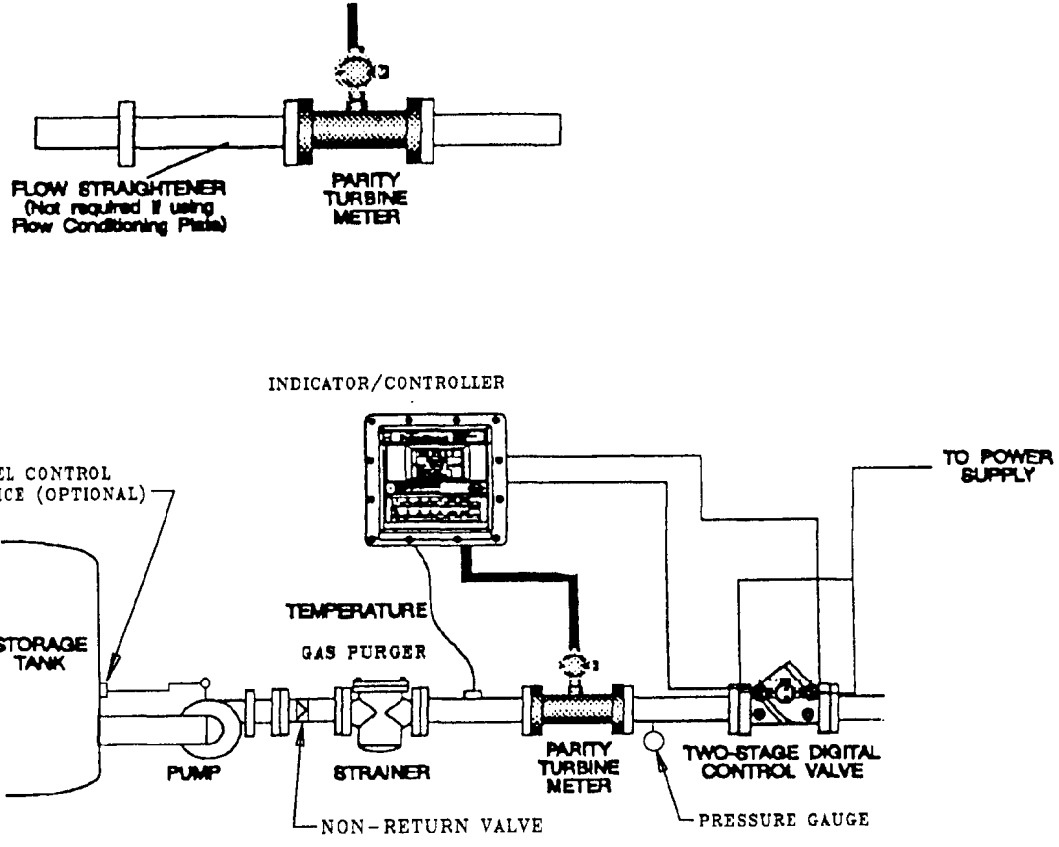
Maximum Permissible Errors at Verification/Certification

The maximum permissible error applied during a verification test of the meter from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule is ±0.3%.

Where an instrument is fitted with a device to convert the indication of volume to volume at reference conditions, the maximum permissible error for the conversion device is ±0.2%.

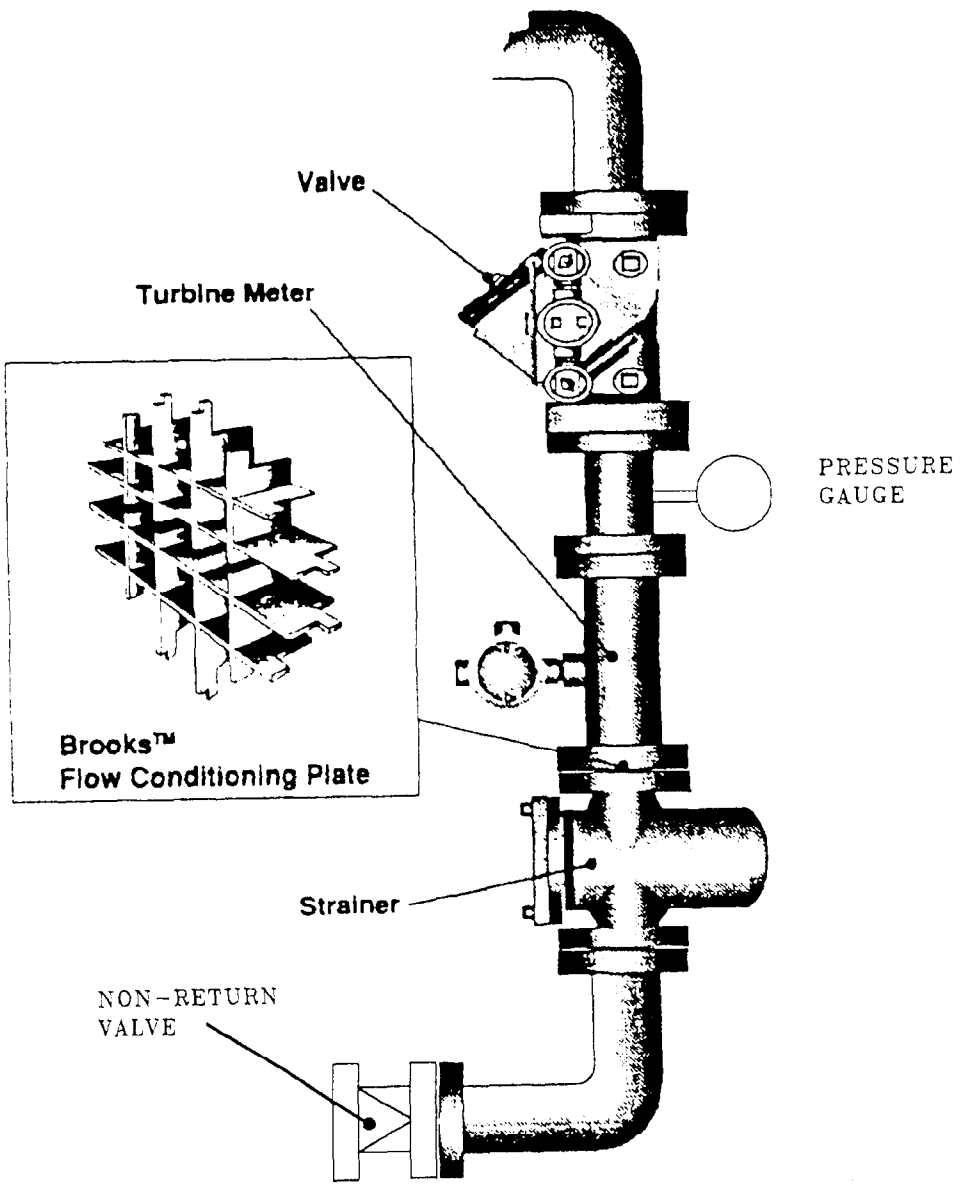
Reference conditions for petroleum liquids are specified in Australian Standard 2649 - 1983, *Petroleum Liquids and Gases - Measurement - Standard Reference Conditions.*

FIGURE 5/6B/91 - 1



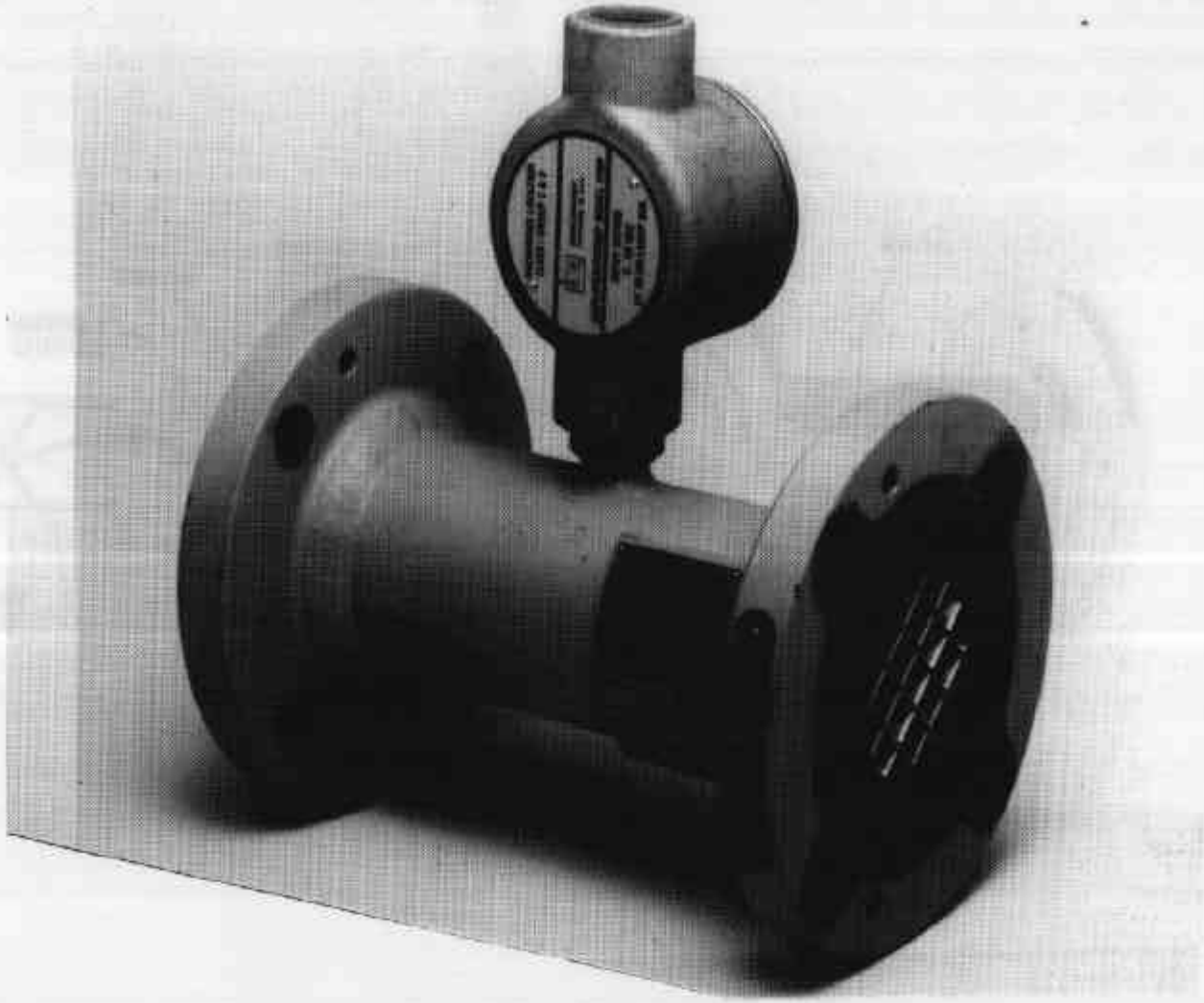
Typical Brooks Parity Turbine Pipeline Flowmetering System

FIGURE 5/6B/91 - 2



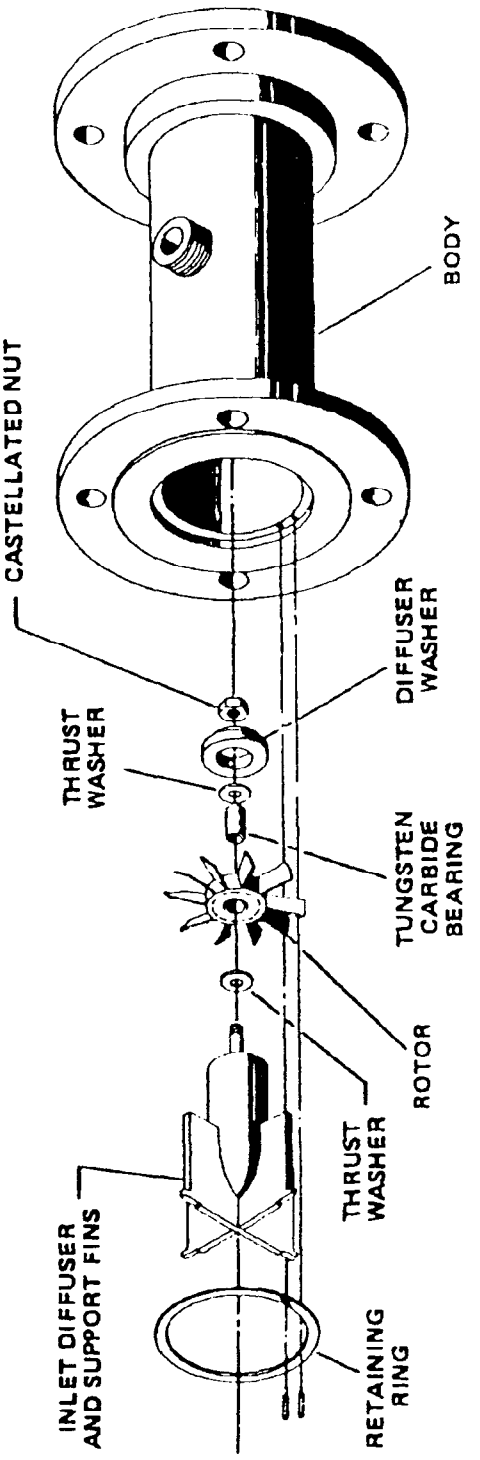
Typical Vertical Installation and Showing Flow Conditioning Plate

FIGURE 5/6B/91 - 3



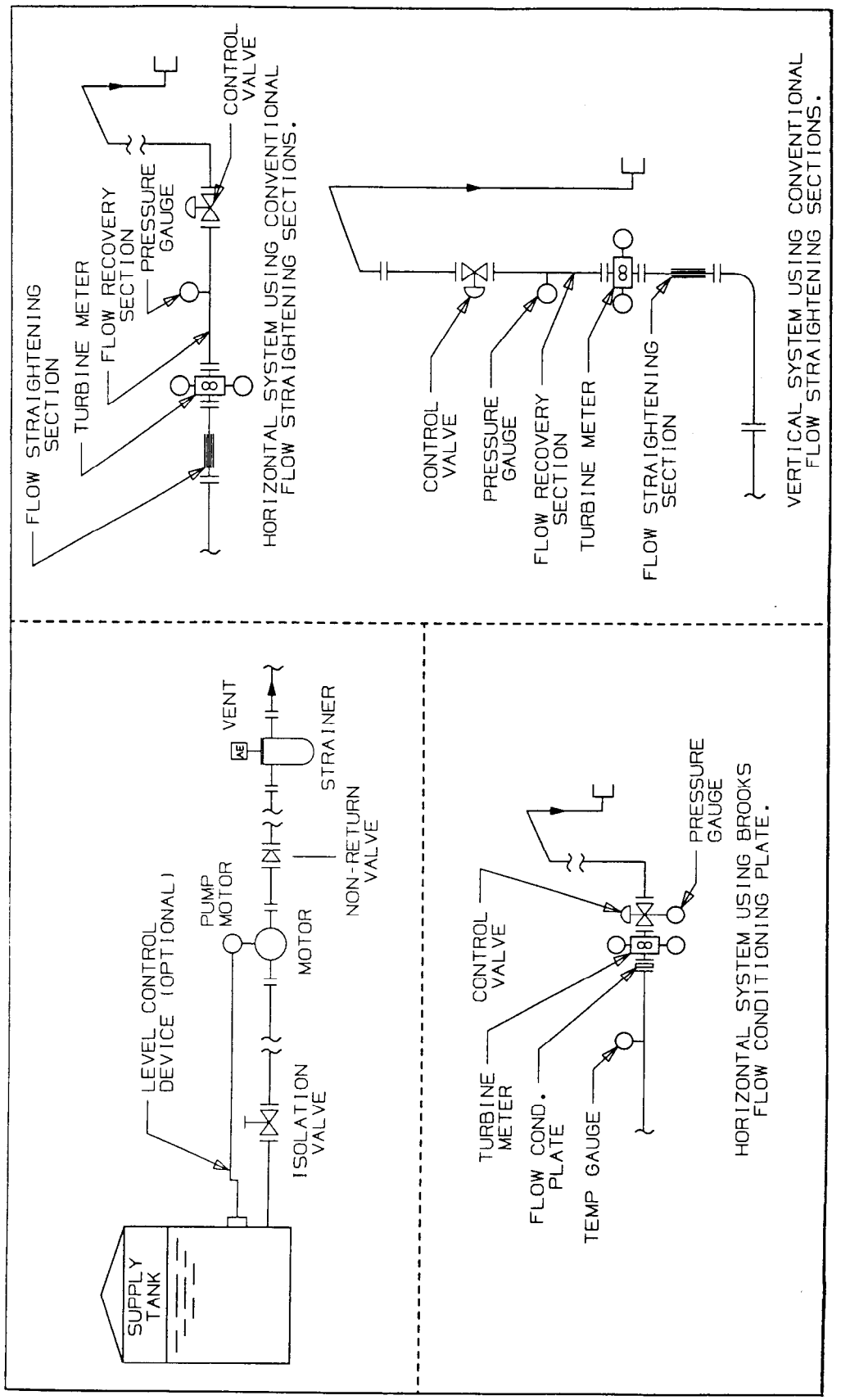
Brooks Model Parity Turbine Flowmeter

FIGURE 5/6B/91 - 4



Brooks Model Parity Turbine Flowmeter

FIGURE 5/6B/91 - 5



Typical Loading-rack Flowmetering Systems