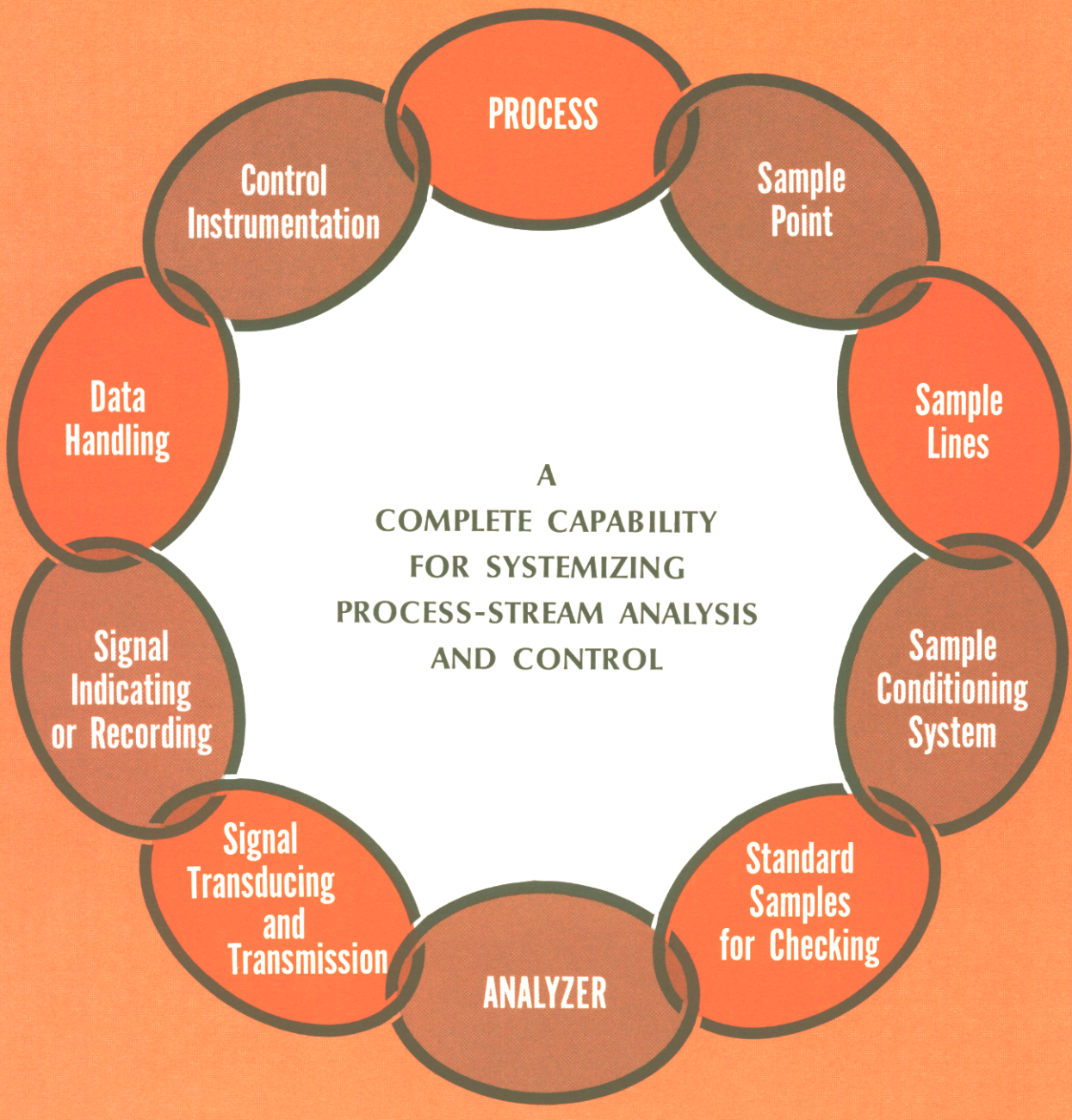
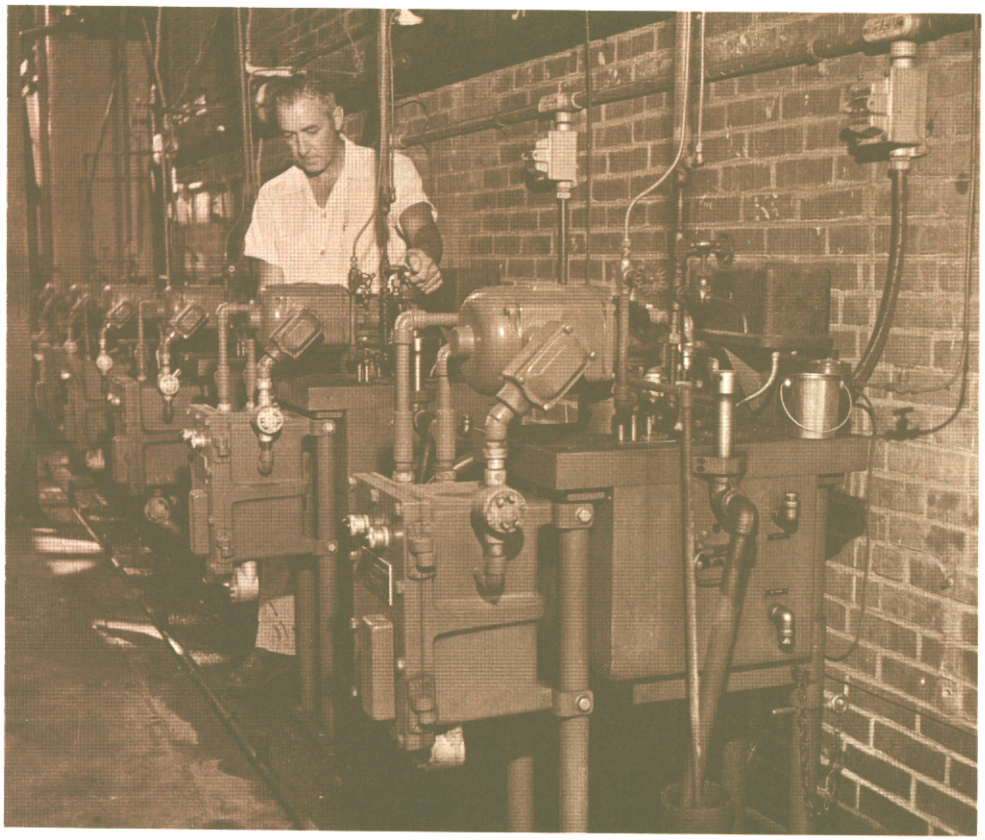
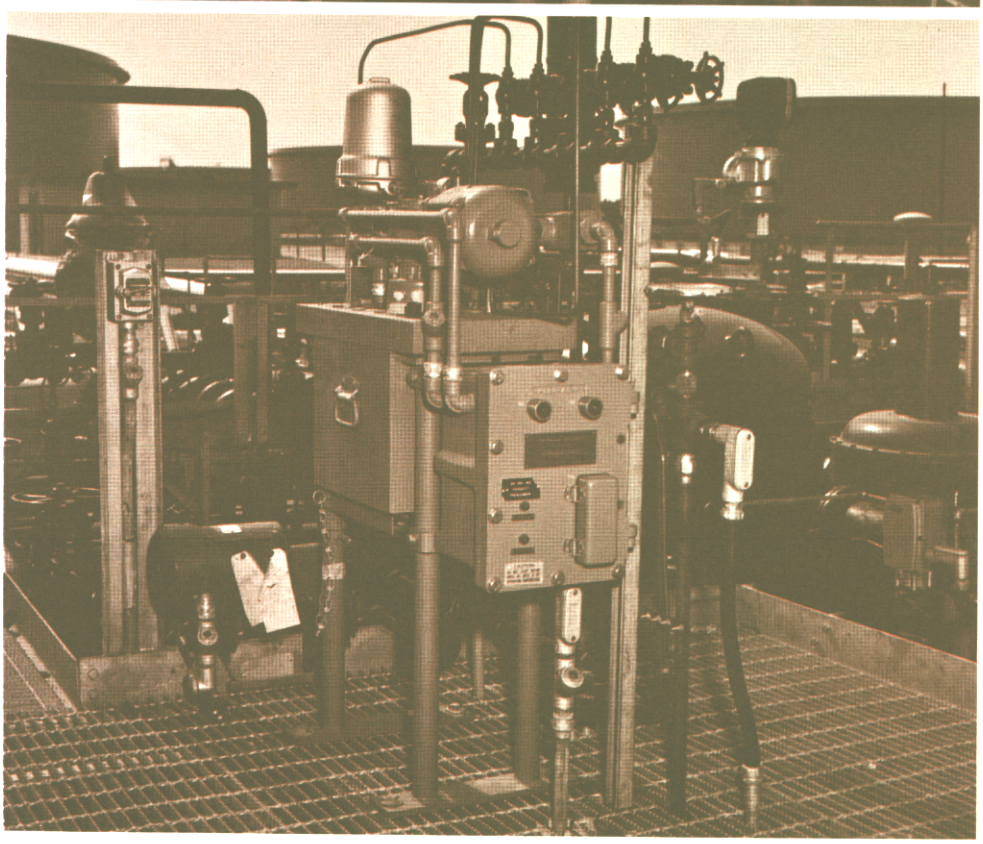


A
COMPLETE CAPABILITY
FOR SYSTEMIZING
PROCESS-STREAM ANALYSIS
AND CONTROL

SYSTEMS DIVISION
HALLIKAINEN
INSTRUMENTS

AUTOMATING STREAM ANALYSIS





Demands for consistently high-quality products off the process stream have revealed critical shortcomings in conventional laboratory techniques of quality control. Laboratory procedures requiring analysis of samples drawn intermittently from the stream can occasion costly delays in correcting faulty output. The need for full-time monitoring of stream specification has given rise to the development of automatic, continuously operating process-stream analyzers.

Advent of the automatic analyzer has imposed changes on the design of modern process facilities. To realize the full benefits of automatic stream monitoring, the process facility must integrate appropriate analytical instruments with correlated systems of sample handling and preparation, and with signal outputs to product control centers. Design and development of such systems requires a special type of technical competence, encompassing not only a thorough knowledge of analytical instrumentation, but knowledge of related control and production requirements as well.

A NEW SYSTEMS CAPABILITY To bridge the gap existing today between the potential benefits offered by new analyzer developments and their practical application to production-scale processing, Hallikainen Instruments has formed the "Systems Division." Formation of the division was based upon the company's long history of successful stream-analyzer manufacture and the close familiarity of key personnel with industrial production environments.

The Systems Division provides industry with a specialized resource in the custom design of analyzer installations to individual facility requirements. Design of such installations runs the gamut of quality control functions, reaching from sample handling to signal outputs to control. This brochure introduces the Systems Division, presents its objectives, and outlines its capabilities for creating profit-enhancing systems of process-stream analysis and control.

FROM PROCESS STREAM TO READOUT

Hallikainen Systems Division assumes total responsibility for the user's analyzer system installation. Its involvement begins with a thorough study of his stream-control requirements. This prepares the way for recommendations of analyzer locations keyed to location of lines, functions, and the location and arrangement of output facilities and control centers.

The Systems Division then assists engineers of the user's facility to develop specifications for each analyzer function. It will request bids from approved manufacturers, prepare bid summaries, purchase equipment, test it under simulated use conditions, deliver it to the plant site, install it, start it up, and, if desired, maintain it for a period of time after startup.

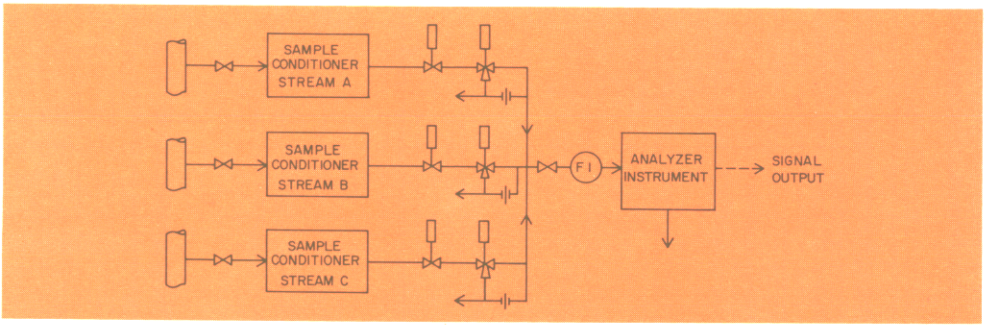
COORDINATION OF FUNCTIONS Engineering of the analyzer installation begins with accurate specification of the sampling systems. Expert preparation and handling of the sample for each analyzer determines, to a great degree, the success of the system.

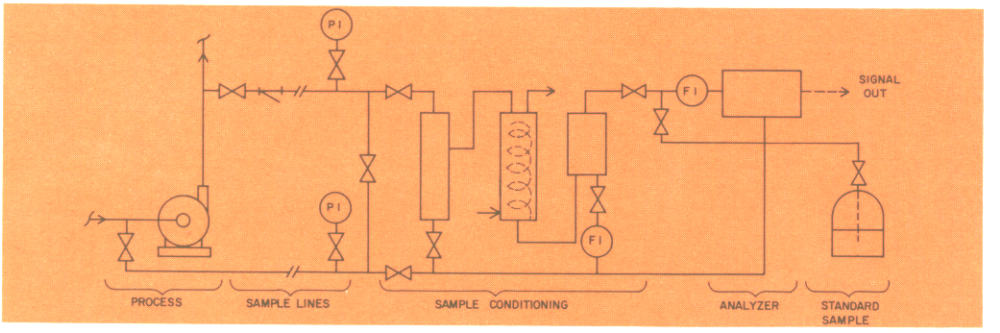
Installation covers the placement of each analyzer (with or without shelter), utility connections, and sample lines from the process stream to the analyzer with all necessary sample preparation devices. Output and readout auxiliaries are furnished to comply with the desires of the user.

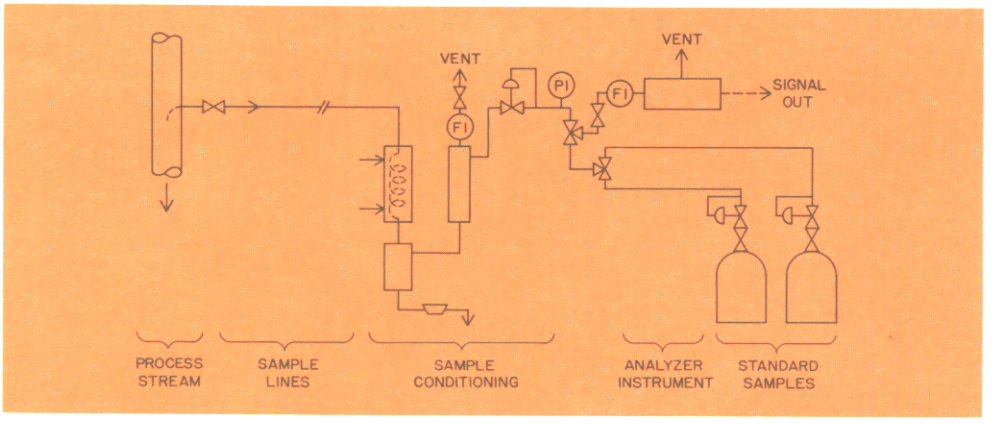
SELECTION OF EQUIPMENT In selecting analyzers appropriate to the application, objective criteria will be used. The Systems Division will not hesitate to purchase and install instruments considered to be competitive to those manufactured by Hallikainen, if the user so desires. In the final analysis, selections will be governed by the user's preferences.

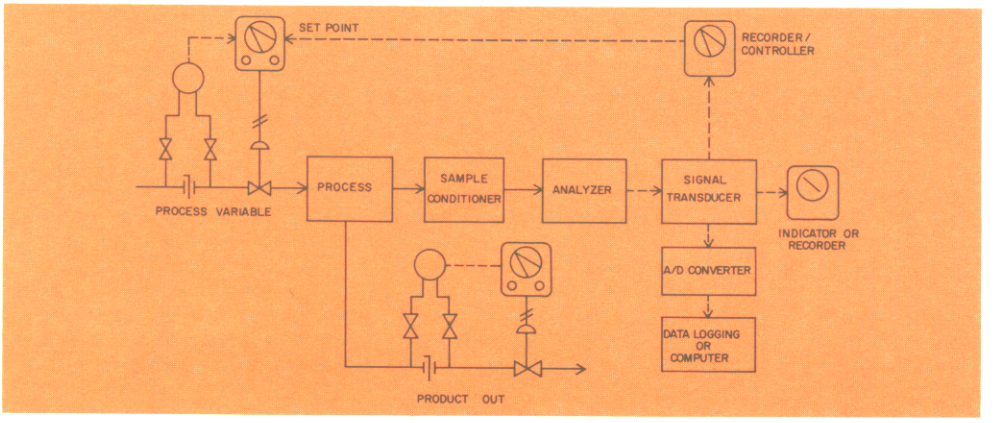
TRAINING OF PERSONNEL To complete its responsibility to the user, the Systems Division will provide a training program at the Hallikainen facility for operators and instrument maintenance people. Information on training programs will be provided on request.

TYPICAL ANALYZER INSTALLATIONS The diagrams on this page suggest several of the many types of custom analyzer installations that can be employed to meet specific process requirements. Installations may range from relatively simple sample preparation and analyzer combinations to highly sophisticated systems for stream monitoring and control linked to a computer center.









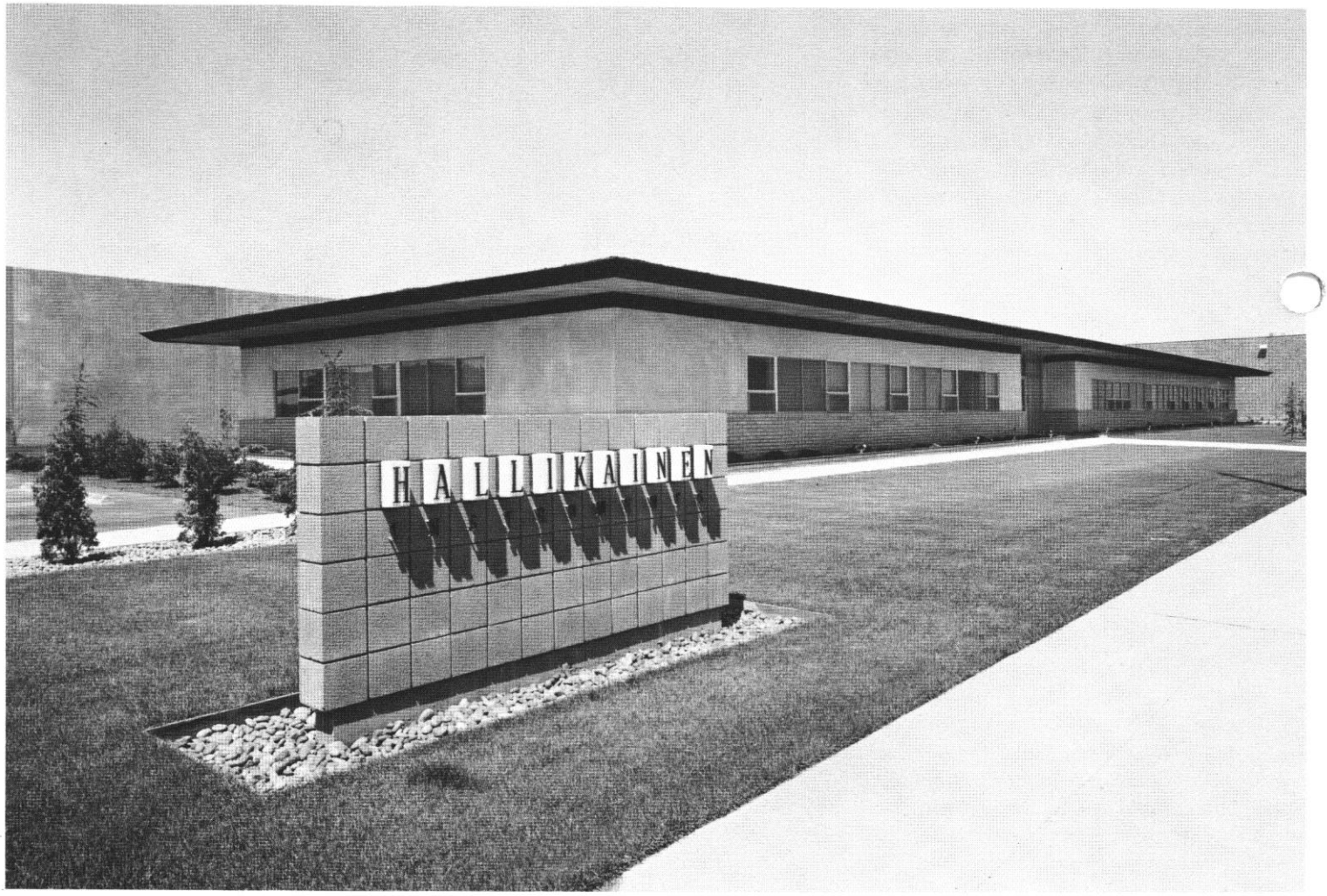
BACKGROUND OF SYSTEMS DIVISION

Systems Division is an entity within the framework of Hallikainen Instruments, since 1952 a leading manufacturer of process control and analytical instrumentation for petroleum refineries and chemical process industries throughout the world. Today, the company markets over 40 products, principally to process industries.

Hallikainen Instruments maintains its central offices and principal manufacturing facility in Richmond, California. The plant provides approximately 25,000 square feet of manufacturing and storage space plus an additional 1,800 square-foot area equipped for the testing of analyzers. Corporate offices are housed in a separate 8,000 square-foot building.

A special outdoor testing facility contributes importantly to the reputation for reliability earned by Hallikainen analyzers. Long-term tests performed under actual climatic conditions give ultimate assurance of performance-to-specification in the customer's installation.

FOR FURTHER INFORMATION For expert engineering consultation on your facility process control requirements, you are invited to write or call Systems Division Manager, Hallikainen Instruments, Inc. at the address or telephone number provided below.



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