

Ram Pumps factory at Worthing, West Sussex, is just a short distance from the south coast ports and Gatwick and Heathrow Airports.

Ram Pumps Division

Unit C, Decoy Road
Dominion Way, Worthing
West Sussex. BN14 8ND

Tel: +44 (0) 1903 206622

Fax: +44 (0) 1903 205511

internet: www.rampumps.co.uk

e-mail: sales@rampumps.co.uk

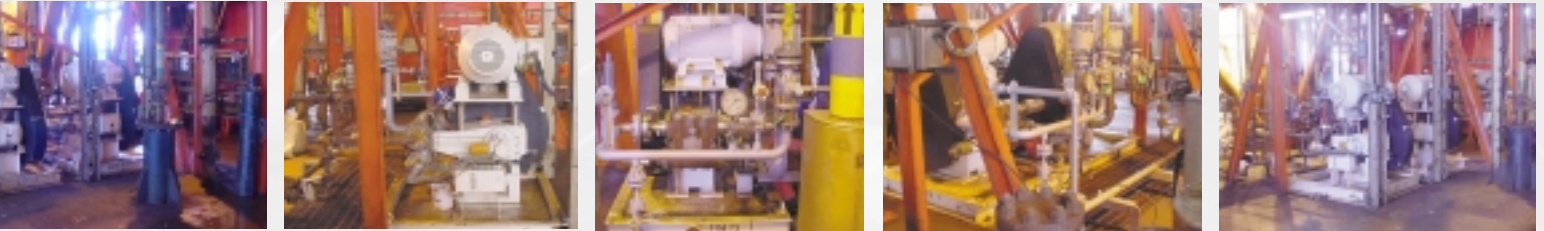


RAM PUMPS

Design, Development & Manufacture of
Reciprocating Process Pumps to API standards



"Providing quality, dependable, high pressure reciprocating pumps to meet special requirements in all types of industrial applications"



Ram Pumps Limited was formed in 1972. Our goal was, as it is today, to provide quality, dependable, high pressure reciprocating pumps to meet special requirements in all types of industrial applications.

There clearly was and is a market requirement for a manufacturer to supply a complete range of quality high pressure pumps and custom designed pump units for highly demanding applications.

The capability of our company and the range of our products have grown to meet this challenge. Our exceptional performance has been proven, with many of our clients

being some of the largest organizations in the world.

Our extensive range of pumps and pump units with their control equipment are designed to meet the exact specifications issued by our clients.

CAT PUMPS purchased the Company in the year 2000. Ram Pumps' traditional market in the oil and gas industry was further strengthened with this acquisition and a range of "standard pumps" was engineered to meet larger capacity demands of other markets such as seawater reverse osmosis.

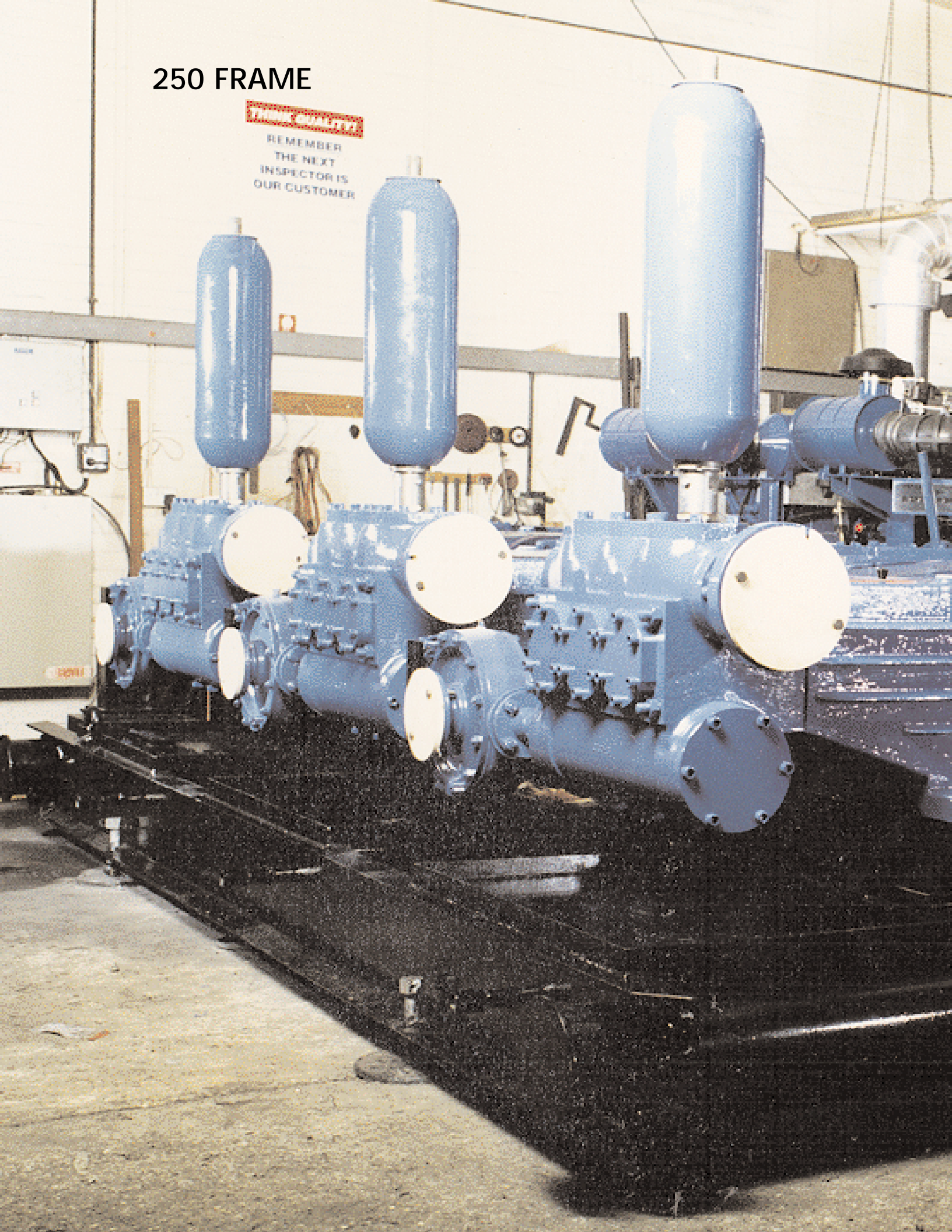


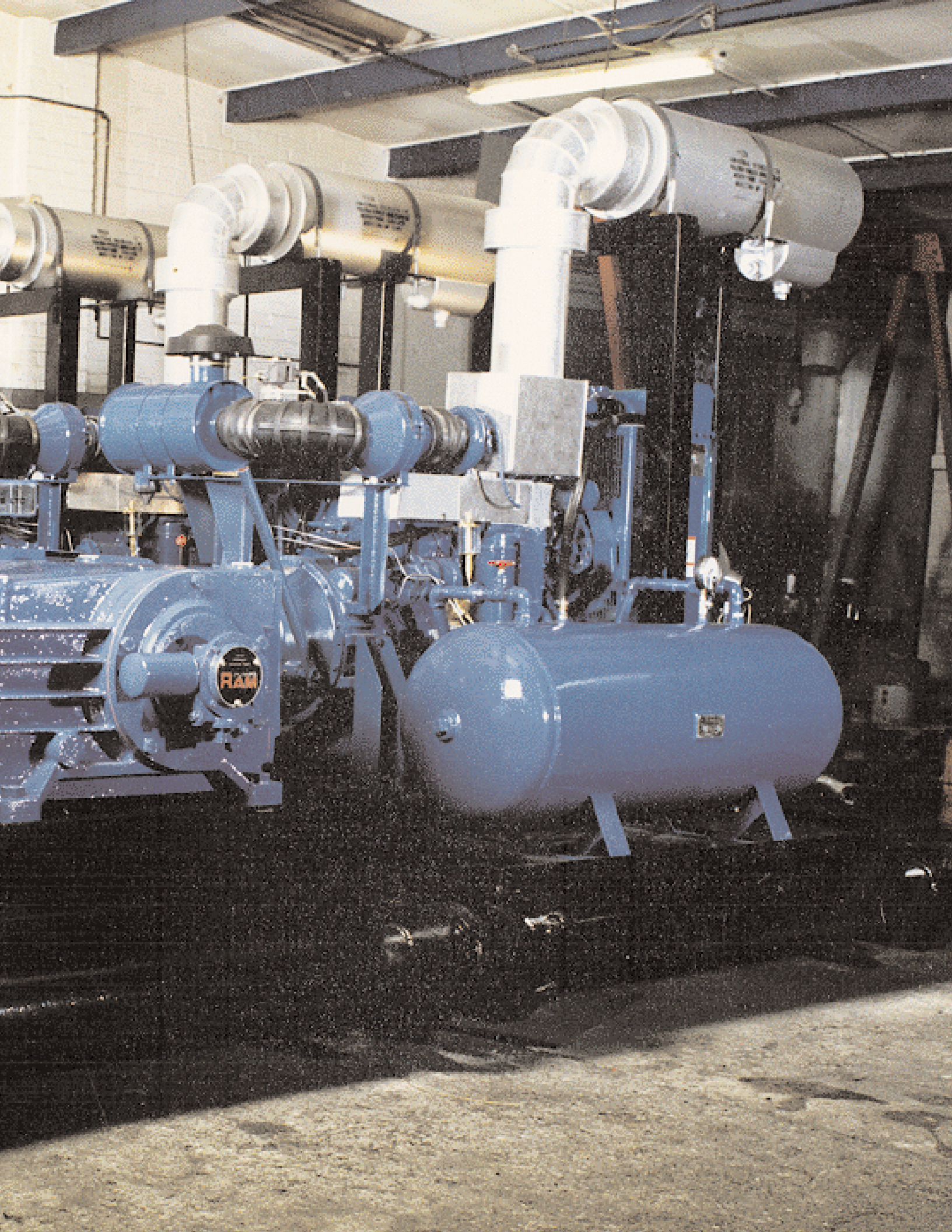
150 FRAME

250 FRAME

THINK QUALITY

REMEMBER
THE NEXT
INSPECTOR IS
OUR CUSTOMER





"Quality materials and design assure quality performance"



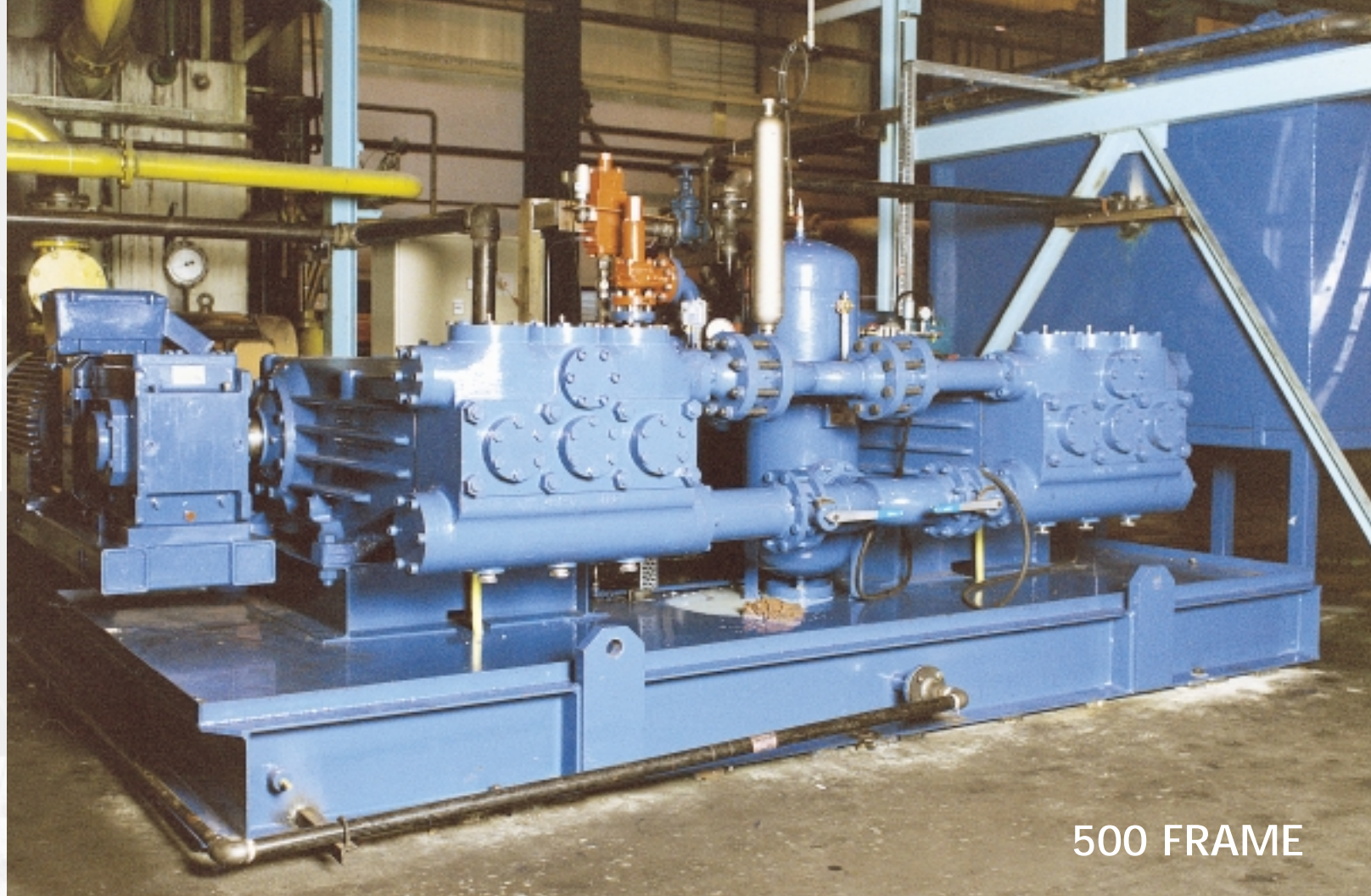
The current range of process pressure pumps from Ram Pumps is high quality, powerful and reliable to match the exacting requirements of Industries such as "Oil and Gas", both on and off shore and chemical processing.

The Concept follows a modern design appearance that has come to be easily recognised by users of high-pressure pumps. The technical specification is based on the current American Petroleum Institute Standard 674, this being accepted as the industry standard around the world. The products have a proven track record of excellence in performance with a no-nonsense philosophy of quality engineering in all areas of construction.

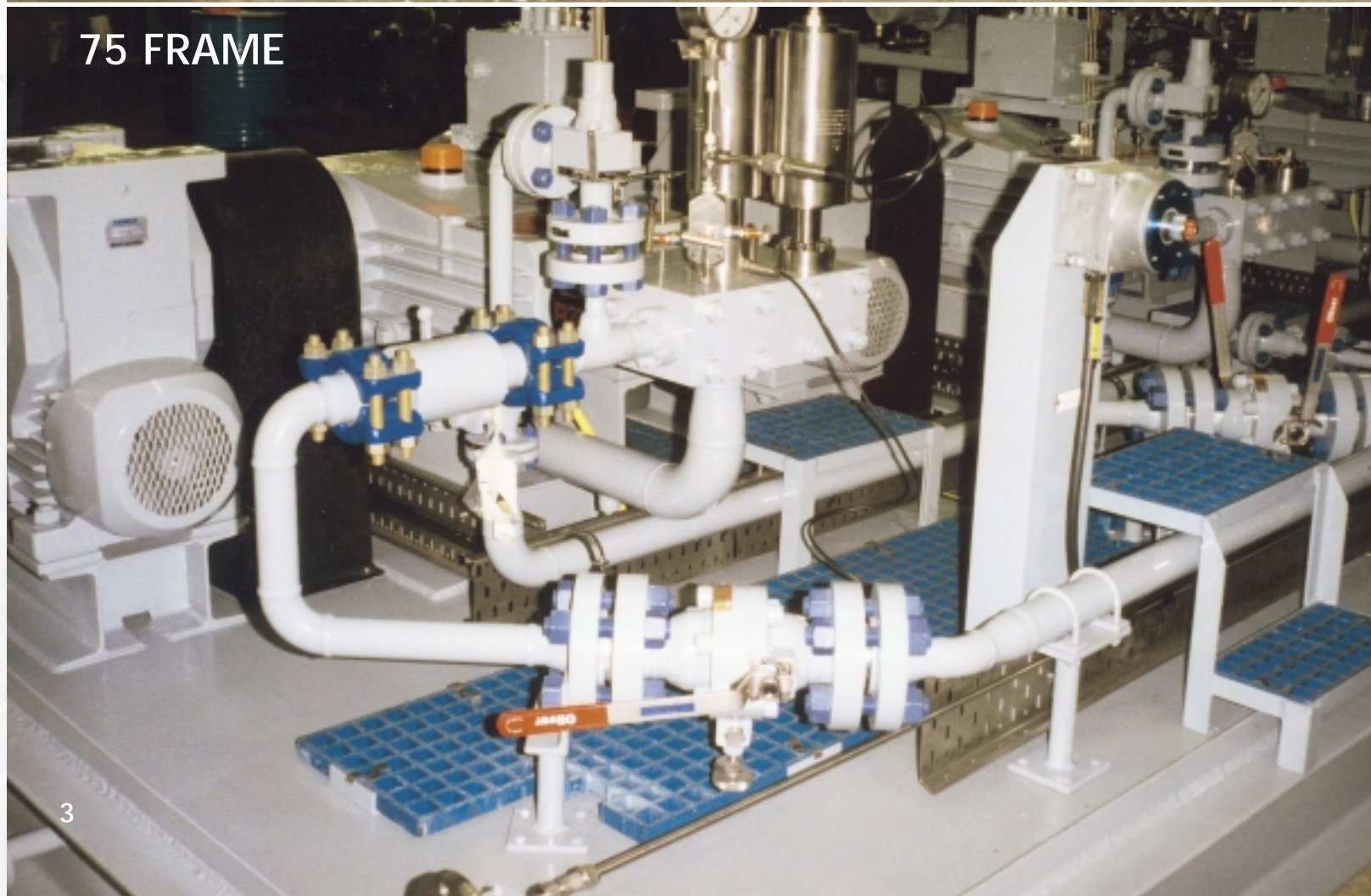
Our Process Pumps have an almost infinite variation of build options that stem from over 25 years experience constructing special purpose pumps and pump units. The pumps, as a philosophy, do not

have integral gearboxes, so as not to limit the exact speed and power available to the client. Power is typically supplied to the pump by TEFC electric or any degree of special build or explosion proof motor and a gearbox, V-belts or timing belts. Various other types of drives are available including DC Motors, Torque Converters, AC Inverters, Diesel or Gas Engines or variable capacity mechanical or hydraulic power packs.

316 Stainless Steel liquid heads are the preferred construction, but there are many options on materials of construction such as Carbon Steel, low and high temperature alloys, Duplex Alloy or Hasteloy. There are also an infinite variety of packing arrangements that can be fitted, coming from a continuing development program that has been running for over 25 years.



500 FRAME



75 FRAME

"Pumps designed to stand the test of time "

Ram Pumps has a large number of reciprocating pumps in field service with many of the major oil and gas producers all over the world. Our clients require solidly constructed, quality built, reliable, easy-to-operate, no-nonsense equipment that is designed to stand the test of time.

We set out with these points as the driving force behind the range of products being designed. The result is a wide range of products in general conformance with API 674 (the defacto standard for the oil and gas industry as issued by the American Petroleum Institute.) The Company remains committed to keeping up-to-date with the latest revisions and ISO 13710.

Our pumps have a proven performance record in many demanding applications.

- Methanol injection
- Fracking
- Glycol injection
- Descaling
- Well equalization
- Reclaim oil
- Waste-water reinjection
- Boiler feed
- Hydrostatic testing
- Hydrocracking
- Gas dehydration
- Crude oil transfer
- LPG
- TEG circulation
- Gas corrosion inhibitor injection
- Hydroblasting
- Trenching
- Reverse osmosis
- Drill cutting injection
- Hydrocarbon Condensate



250 FRAME



75 FRAME



"Custom designed, fully tested pumps and pump units"

Ram Pumps Ltd. operates a Quality Management system in compliance with BS EN ISO 9001 and the manufacture of all the Company's products is undertaken in our factory in West Sussex, England.

A highly experienced Design Engineering Department, using latest Computer Aided Design Techniques produces the required drawings and technical information for production.

Our factory is staffed with a team of specialized personnel who take pride in their dedication to the production of a high quality product line, including bare-shaft pumps and custom designed pump units, fully tested and ready for delivery and installation.

SINGLE PROJECT SPECIAL PURPOSE PUMPS

We offer an infinite variety of special build options with API compliance for the oil and gas industry.

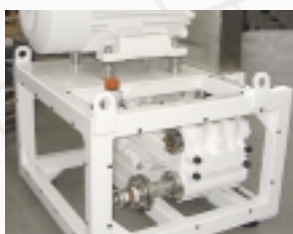
Our consistent quality engineering, manufacturing and speedy response to market conditions enable the Company to meet the exact needs of our clients, who require special purpose, custom designed pumps or pump units.

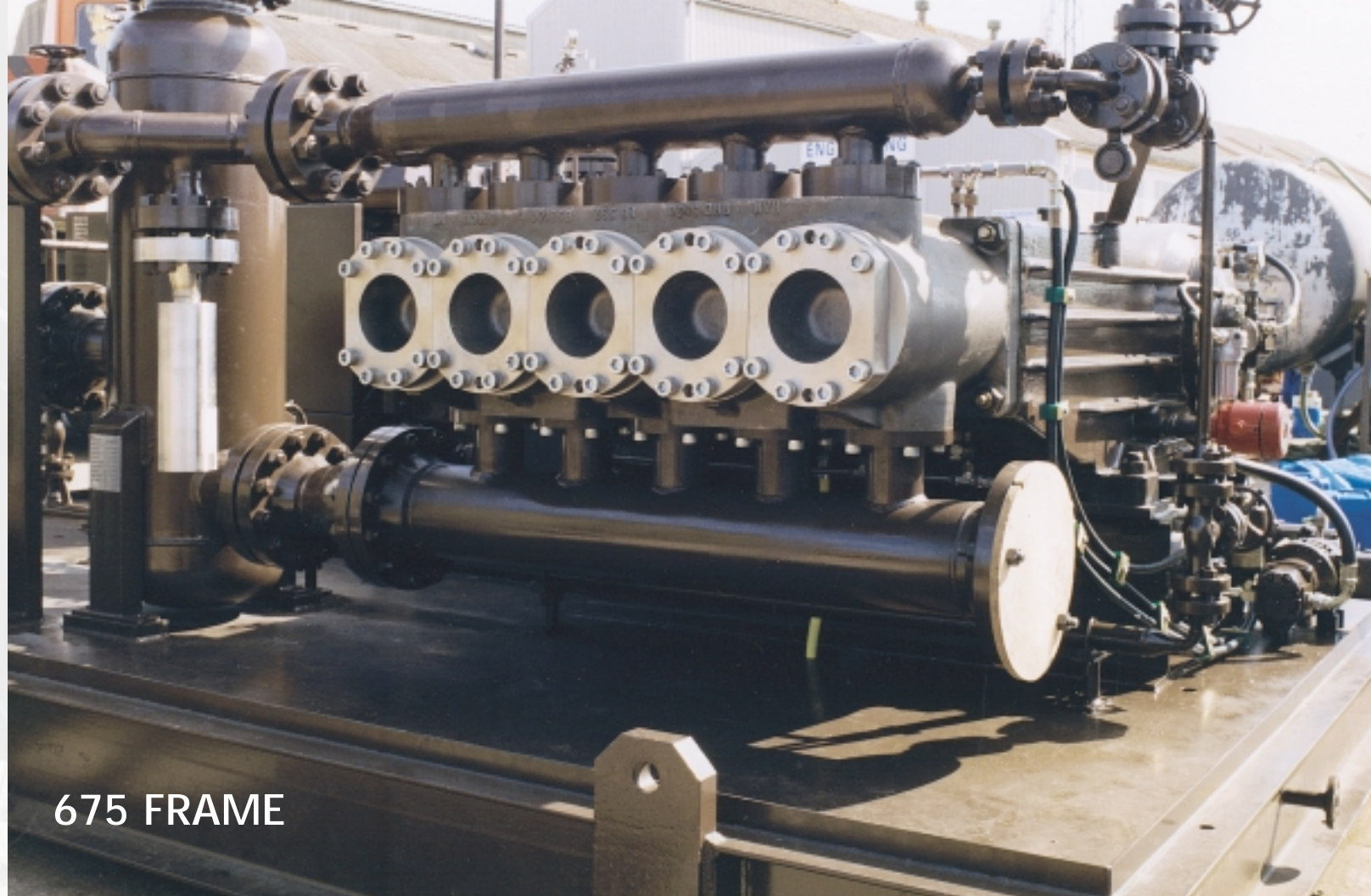
We start with our standard pump design, complete a detailed review of our client's application specifications and design a custom pump or pump unit to meet each unique requirement. Special lubricating systems, high temperature packings, special plunger materials or special paint finishes are just a few of the custom features available. With the many design options, we can offer a very acceptable delivery, while meeting these special requirements.

STANDARD PUMPS

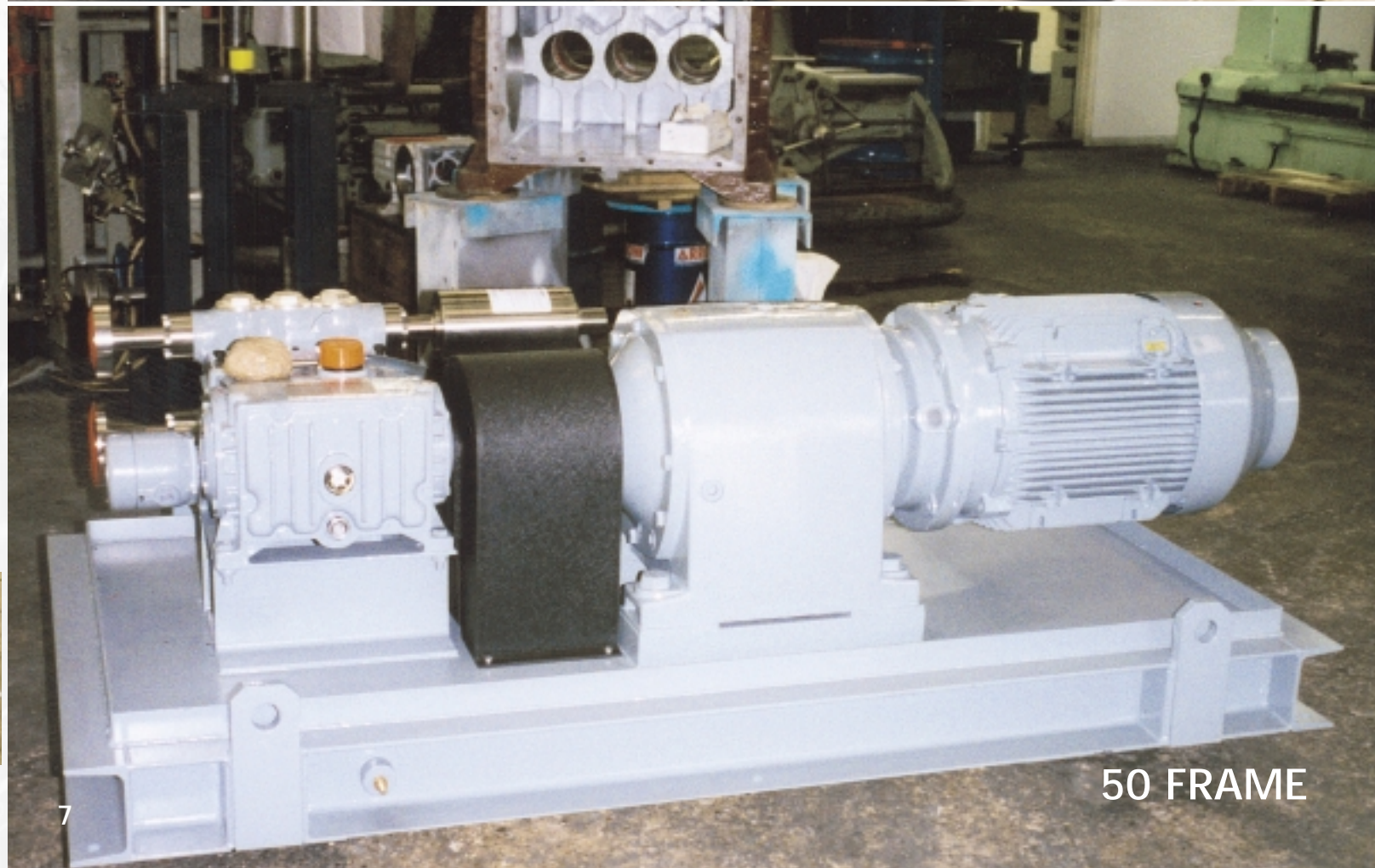
We offer superior lead-time for standard performance pumps.

Under the new CAT PUMPS management, evolving designs and investment in manufacturing has allowed the Company to produce standard pump models in larger production batches, offering the client superior lead-times and favorable prices. The proven chevron packing design and concentric solid ceramic plungers are featured throughout these standard pump models. Standard duplex stainless steel liquid-end construction offers a very affordable and durable pump for reverse osmosis and other chemical and industrial applications.





675 FRAME



50 FRAME

"Quality components offering strength, durability and compatibility in a wide variety of applications"



Crankcases are constructed from high tensile S.G. Iron offering exceptional strength, vibration dampening, flame and spark resistance for hazardous areas.

Crankshafts are constructed from high tensile materials, suitably heat-treated and processed offering unmatched service life.

Bearings are large capacity tapered roller bearings offering maximum load bearing support at each end of the crankshaft. Special bearings can be fitted for high stress applications.

Lubrication on all standard pump models is splash/submersion while the larger capacity models have pressure lubrication driven directly by the crankshaft of the pump. In the latter case pressure oil is supplied to big and small end bearings with splash to all other moving parts. Other lubrication options are available.

Liquid End: Pressure containing parts are offered in ANSI 316 Stainless Steel, Duplex Alloy or Carbon Steel for a quality product that provides maximum life and a wide range of compatibility.

Plungers and Packings:

Considerable lab and field testing has gone into the development of these items, providing a large number of solutions to suit varying applications. Plungers can be offered in a variety of materials from solid Ceramic to Tungsten Carbide coated, while packings are PTFE/Kevlar or any number of other materials. Long service life can be expected from the product before maintenance is required.

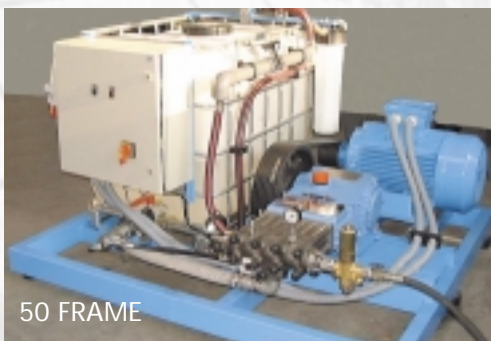
Transmissions: All pumps in the range are designed with a 'bare shaft' format to allow for all types of transmission to be applied giving a totally flexible product. Most pumps are available for chassis or special overhead electric motor mounting, advantageous where space is at a premium. For the larger requirements, a full range of helical and worm gearboxes are offered for use with either electric motors or internal combustion engines.

Painting: Two pack Epoxy paints are used as standard, but many other finishes are available in any choice of color. Our sales office will be pleased to quote.

Testing: Both pumps and custom designed packages are fully works tested at duty point regardless of size.

"Careful matching of application requirements with pump options will assure optimum performance and pump life"

- Each frame size has a number of plunger diameter options providing a wide range of performances to best suit the application requirements. Refer to Data Sheets in back for model and performance selection.
- Liquid-end construction and elastomers must be compatible with the liquid being pumped, temperature and other application variables.
- The drive is dependant upon the location of the application, the available electricity, safety requirements, duty-cycle and matching of the pump RPM and drive.
- The pump is the heart of the system, but adequate Pressure relief and other system accessories are equally important for optimum performance and life.
- Technical support accompanies every product. We have a highly trained sales and engineering staff available to assist you with the selection of one of our standard products or we will review your custom requirements and [design a pump to meet your specific needs.](#)



50 FRAME

Volumetric Efficiency (%)

The data has been presented using a volumetric efficiency of 95% for pressures up to 200 bar (3,000 psi). At higher pressures the volumetric efficiency will reduce. At 700 bar (10,000) psi, it will be reduced by 5%, approximately 1% per additional 100 bar (1500 psi).

Pump Speed (RPM)

The performances for each model listed are the Maximum Rated RPM and flow.

Being positive displacement pumps, the RPM of each can be reduced to decrease the flow, down to the stated minimum RPM listed.

Mechanical Efficiency (η_m %)

The pumps have a mechanical efficiency better than 90% over most of their performance range. The conservative figure of 85% is used in determining the required power [kW / HP]. The efficiency of the transmission system should be allowed for. (η_t %)

Required Power (kW / HP)

Do not exceed the rated power [kW / HP] for the pump.

Absorbed kW

$$\frac{\text{Flow (l/m)} \times \text{Pressure (bar)}}{\eta_m / 100 \times \eta_t / 100 \times 600}$$

Absorbed HP


$$\frac{\text{Flow (GPM)} \times \text{Pressure (psi)}}{\eta_m / 100 \times \eta_t / 100 \times 1714}$$



"The Pumps that Stand the Test of Time"

World Headquarters
CAT PUMPS
1681 - 94th Lane N.E. Minneapolis, MN 55449-4324
Phone (763) 780-5440 — FAX (763) 780-2958
e-mail: sales@catpumps.com
www.catpumps.com

International Inquiries
FAX (763) 785-4329
e-mail: intlsales@catpumps.com


"The World's Most Dependable Pumps"
RAM PUMPS Division
Unit C, Decoy Road, Dominion Way
Worthing, West Sussex BN14 6ND
Tel: +44 (0) 1903 206622 — Fax: +44 (0) 1903 206611
e-mail: sales@rampumps.co.uk www.rampumps.co.uk

CAT PUMPS (U.K.) LTD.
1 Fleet Business Park, Sandy Lane, Church Crookham, Fleet
Hampshire GU52 8BF, England
Phone Fleet 44 1252-622031 — Fax 44 1252-629955
e-mail: sales@catpumps.co.uk
N.V. CAT PUMPS INTERNATIONAL S.A.
Herwijkstraat 6A, 2550 Kortrijk, Belgium
Phone 32-3-450.71.50 — Fax 32-3-450.71.51
e-mail: cpi@catpumps.be www.catpumps.be
CAT PUMPS DEUTSCHLAND GmbH
Bachwiese 2, D-66510 Idstein, Germany
Phone 49-6126-9303 0 — Fax 49-6126-9303 33
e-mail: catpumps@t-online.de www.catpumps.de