

**Variable speed,
constant advantages:
less power, less noise,
less cost!**

Upgrade or retrofit hydraulic machines – increase performance and productivity with an intelligent pressure source! With Sytronix by Rexroth.



UP TO
80
PERCENT LESS
ENERGY
↓

UP TO
20
dB (A) LESS
NOISE
↓

Average power consumption of the conventional pressure control system

Average power consumption Sytronix

↑ Savings ↓

**LOAD PROFILE
MACHINE TOOLS**

What are Sytronix variable-speed drives?

Sytronix variable-speed pump drives are hydraulic system game-changers and offer new opportunities for innovative designs. Energy-efficient solutions using components matched to the application and an in-depth knowledge of the technology are key factors.

ENERGY ON DEMAND

Partial load operation offers the highest potential

Featuring the combination of the electric asynchronous motor, the motor drive and the hydraulic pump: Rexroth reduces operating cost in hydraulic systems with variable speed pump drives when the machine cycle flow demands vary significantly. By using intelligent drives, Sytronix optimizes the speed of the electric motor and therefore the power consumption. The greater the percentage of partial load operation, the higher the savings potential. The energy consumption can be reduced by up to 80 percent.

By optimizing pump speed, the noise emission is reduced by up to 20 dB (A) – the cost for sound deadening secondary measures are reduced accordingly.



Control device



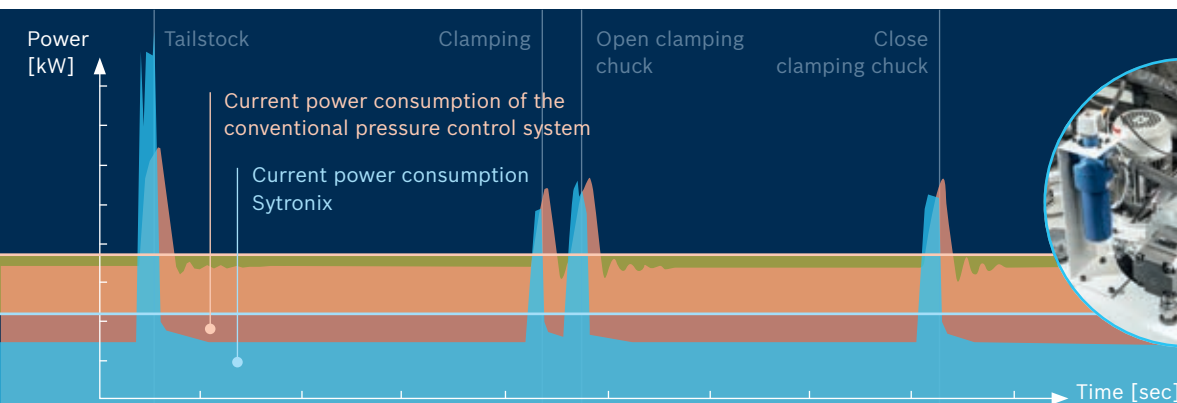
Asynchronous motor



Variable displacement pump



Fixed displacement pump



Many advantages – one result: Higher energy efficiency, lower cost

With Sytronix, pump speeds is continuously automatically optimized to demand. The drive speed of the pump is lowered to an energy-efficient and quieter level when the process does not require constant maximum output. This drastically lowers the energy consumption and therefore also the TCO. In some countries, energy consumption in standard machines makes up 20 to 30 percent of total cost. The properties and advantages of Sytronix are listed here in detail:

Lower operating cost

Sytronix lowers energy consumption by up to 80 percent, therefore also lowering operating cost. From experience, the investment amortizes in less than one year.

Less cooling need

Variable-speed pump drives decrease the influx of heat into the hydraulic fluid, leading to a reduced need for cooling.

Less noise emission

Sytronix reduces average noise emission of the hydraulic power unit by up to 20 dB (A). This way, you can comply with legal and user-specific noise control standards without sound deadening or structural modifications.

Easy installation and commissioning

Commissioning dialogs, automatic motor measurement and integrated hydraulic functions (sleep/wake function, soft start, protective functions, HPU sensor management, pump power limitation, master/slave functionality, function for pumps with two-point control) will lead you through the process of commissioning safely and quickly.

SIMPLE

Fast project planning with SytronixSize

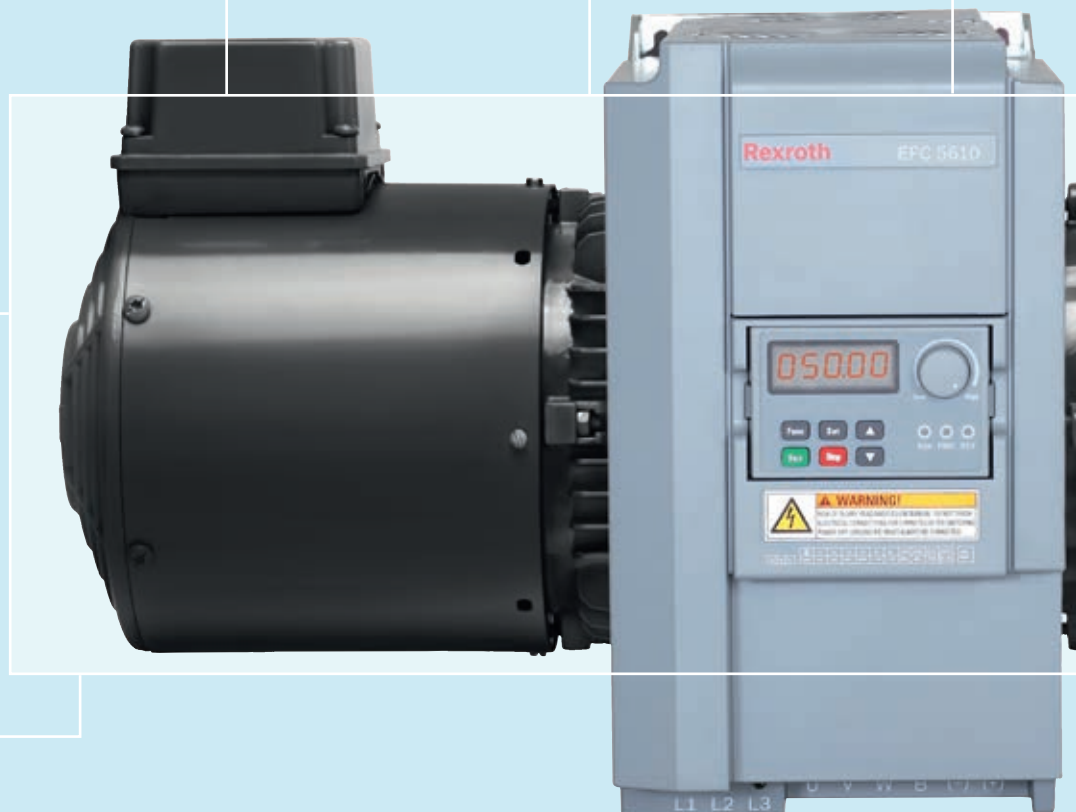
Choose from more than 100 pre-configured sets or design a customized configuration with SytronixSize. Ensure optimum system dimensioning with the step-by-step instructions. Reduce the installation and commissioning times.

QUICK

AFFORDABLE

EFFICIENTLY

QUIET



ADVANTAGES AT A GLANCE



Less space required

The compact design saves costly installation space in the machine and in the control cabinet. Furthermore, the hydraulic control can often be significantly simplified and thus cost for hydraulic components can be reduced.

COMPACT

Efficient retrofitting

Efficient retrofitting: Sytronix is consistently designed for modernizing pressure control systems. Rexroth experts support users in making the most of the advantages of Sytronix, even for already installed systems.

MODERN

Greater system availability

Sytronix extends the service life of shaft bearings as well as hydraulic fluids and decreases downtime through condition monitoring. In regulated drives, the software monitors the operating states and carries out diagnostics.

SAFE

Open communication interfaces

Sytronix provides full connectivity with Multi-Ethernet (PROFIBUS, Multi-Ethernet with Sercos, PROFINET, EtherCAT, EtherNet/IP) as well as fast and easy connection to diverse control platforms. Integrating sensors of the power unit via motor drive and its machine control bus system, creates a package that is easy to use. IndraWorks DS supports parameterization and diagnostics during commissioning.

OPEN



Operating cost:

An enormous energy-saving potential at a lower cooling requirement



Investment cost:

The cost are reduced by smaller construction sizes of pumps and motors as well as numerous simplifications



Noise reduction:

Easier compliance with EU directives as well as reduced cost for sound deadening insulation



Availability and service life:

Less wear of shaft bearings and extended fluid protection improved monitoring of the system conditions



Installation and commissioning:

Especially easy due to parameterizable hydraulic functions



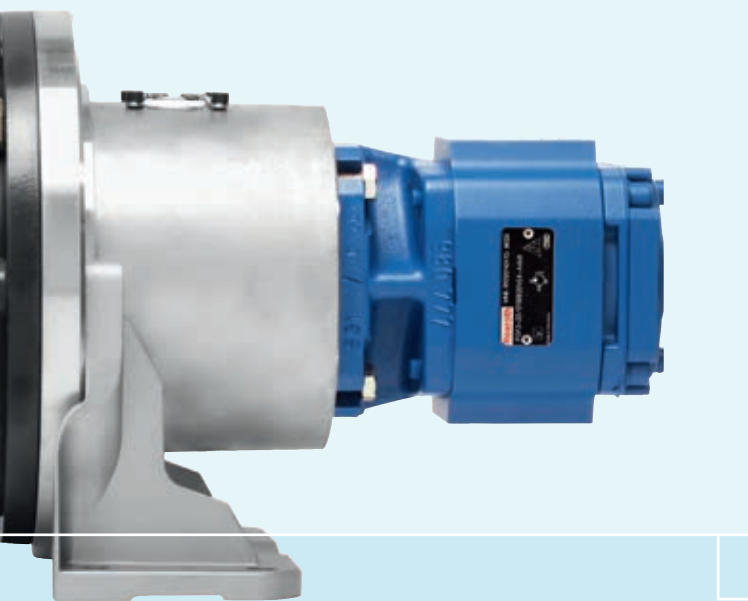
Project planning:

Makes selection, dimensioning and risk minimization easier



Modernization:

Perfect for retrofitting existing systems



Sytronix FcP 5020 with EFC 5610

Sytronix DRn – perfect for retrofitting: maximum pressure in the smallest of spaces

The Rexroth system DRn 5020 was especially developed for simple performance improvement of pressure compensated pumps in press lines, metallurgy, wood working or centralized hydraulics. It provides a powerful, dynamic and cost-effective solution for larger systems, from 4 kW on up. The pump control monitors the efficiency of the variable displacement pump and constantly adjusts the motor for the perfect speed. By reducing motor loading in stand-by operation, high overload capacity is achieved. In combination with DRG pumps, the pressure set point can be remotely adjusted.

Retrofitting of existing constant pressure pump systems

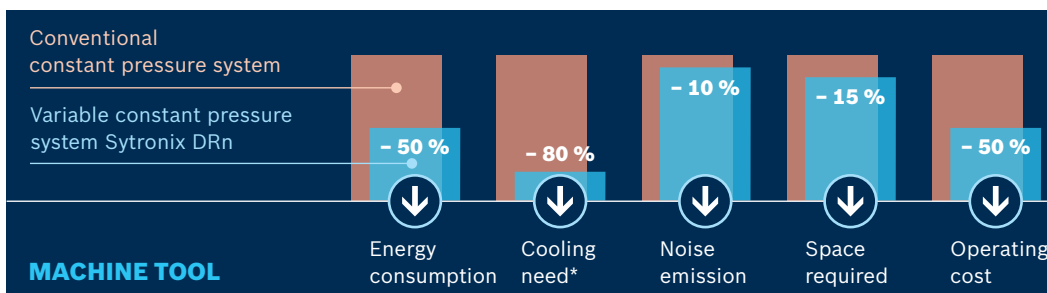
The DRn pump controller and pressure sensor are easily integrated in existing systems. In partial load operation, the pump minimizes the motor torque loading by reduction of the swivel angle and the drive reduces the speed so that the energy normally wasted is saved. The variable displacement pump allows that no braking resistor is thus needed. Pump speed is no longer limited by line frequency, and maximum flow rates, per pump size, can be achieved. This ensures the energy efficiency and the installation space are optimal.

EFC 5610 pump control is available from 4 kW (5 HP) to 160 kW (200 HP). The system particularly distinguishes itself by a rapid response time due to the fast-acting pump pressure compensator even with a conventional asynchronous motor. The DRn pump control optimizes the operating speed, maximizes efficiency and minimizes the noise.

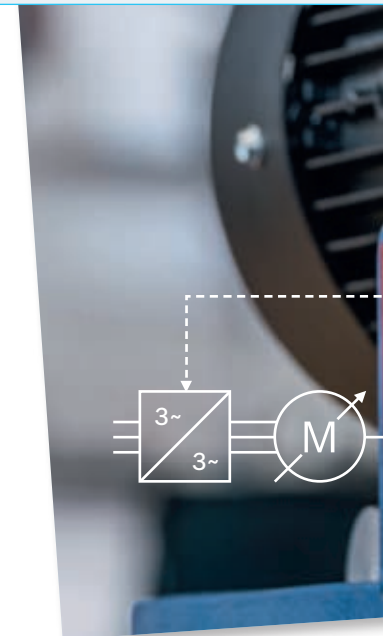


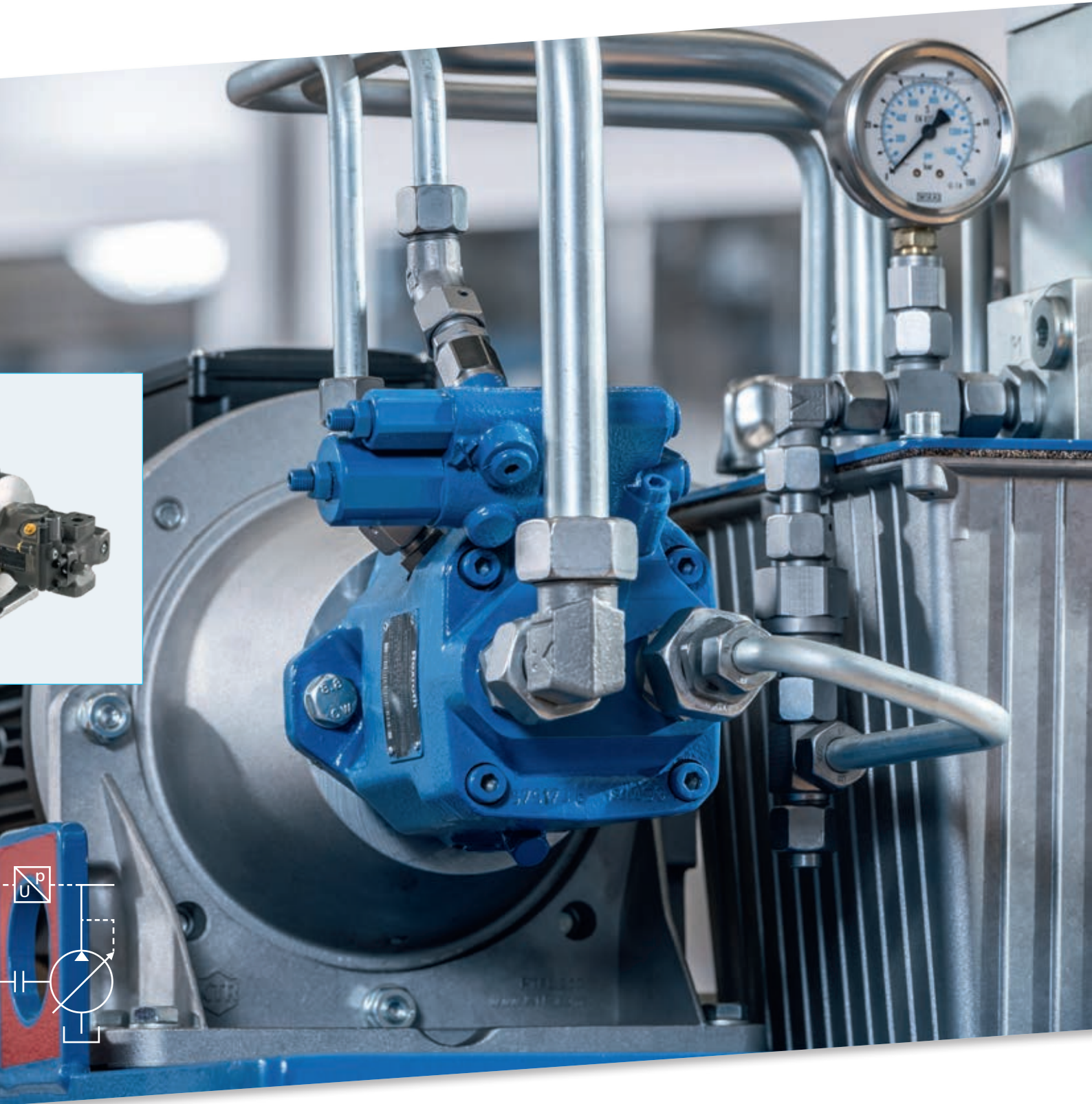
▲ EFC 5610 pump control plus asynchronous motor with variable displacement pump

▼ Conventional system vs. Sytronix DRn

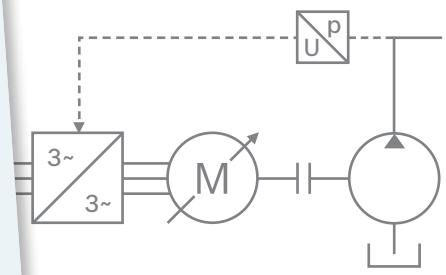


* in zero stroke mode



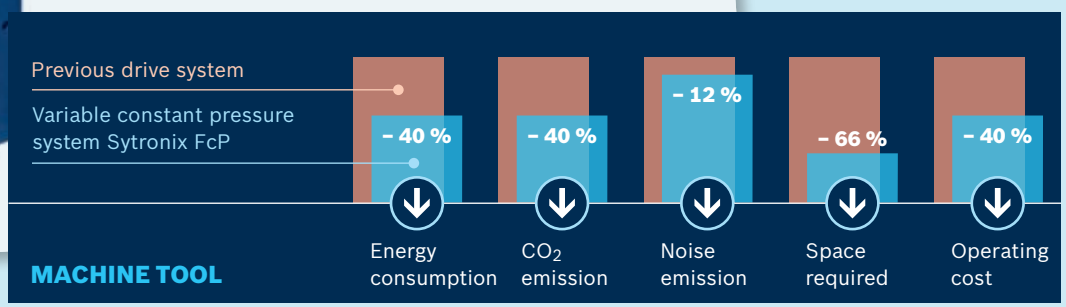


Sytronix FcP – perfect for smaller power units: controls pressure, flow and power flexibly and extremely quiet



◀ **ABPAC is an intelligent standard power unit for all areas where a hydraulic pressure supply unit is required, e.g. in general mechanical engineering, metal-cutting machine tools as well as in press lines and in material handling**

▼ **Conventional system vs. Sytronix FcP**



MACHINE TOOL

FcP is a smart solution, especially with small to medium performance if there are high requirements regarding noise emission.



FcP – Frequency controlled Pump Drive

The Sytronix FcP sets consist of a motor-pump unit with a standard asynchronous motor and a controller. The FcP product family covers the field of standard performance with regard to dynamics, precision and scope of functions. It is suitable for applications with constant pressure, controlled flow profiles or flow with pressure override p/Q control.

The FcP system uses fixed displacement PGF internal gear pumps in the smaller power range. In the higher pressure and power range, fixed displacement internal gear pumps of the PGH family, as well as the two-point control dual displacement axial piston pumps A10 and A4, are used. Through the use of dual displacement pumps with two-point control, the load on the electric motor can be reduced, particularly in high pressure ranges, so that a smaller-size drive is sufficient. This lowers system cost and saves installation space.

The Sytronix FcP 5020 variant offers power up to 90 kW and supports all common bus systems (PROFIBUS or Multi-Ethernet with Sercos, PROFINET, EtherCAT as well as EtherNet/IP).

APPLICATION EXAMPLE: PRESS LINES

Whether for energy-efficient pressure generation or as a control element in two-quadrant or four-quadrant operation: The scalable Sytronix systems provide markedly increased energy efficiency and state of the art press automation. They integrate seamlessly into the press automation via open interfaces. In its simplest form, Sytronix FcP produces flow and system pressure on demand.

In addition to a decrease in energy consumption by up to 80 percent, Sytronix systems improve efficiency because there is no throttling loss at the control edges of additional valves. Exact metering of the required oil quantity and switching off the electric motor when the process does not require any flow or pressure function is always the best solution.

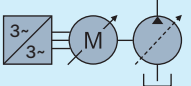
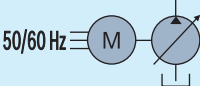



Sytronix – installed quickly, saved quickly, amortized quickly

SytronixSize, the free design tool, calculates the cost of a conventional hydraulic solution with a pressure compensated pump based on the current load profile in comparison to the cost of a Sytronix speed-variable pump drive system.

In many cases, the acquisition cost can be generated in less than one year by reducing the number of components and the frame size as well as the electricity cost.

SMALL EFFORT, GREAT EFFECT – SYTRONIX PAYS OFF:

		
System operates 16 h/d	Sytronix	Fixed motor and variable displacement pump
Average mains power	1,574 kW	2,397 kW
Energy consumption	6,294 kWh/a	9.588 kWh/a
Energy cost 0.19 €/kWh	1,195.95 €/a	1,821.82 €/a
Energy savings per year	- 35 % - 625.00 €/a 	

Sample calculation

The existing system requires energy for 1,821 € (0.19 €/kWh). With the same load profile, the Sytronix system requires energy for 1,195 €.

At 0.19 €/kWh the cost for additional components amortize in less than one year.

Additional advantages that are not yet included in the calculation:

- ▶ Savings in valves, savings by reducing the motor/pump size
- ▶ Reduction of the system wear and thus allowing longer service intervals





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