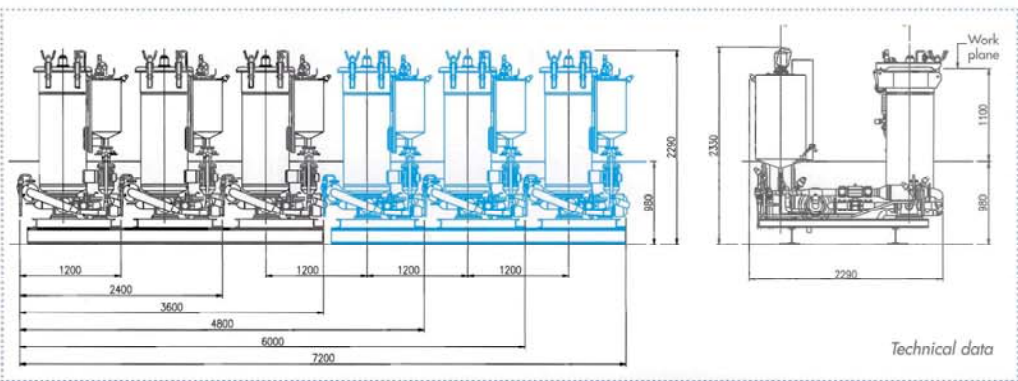


Detail of coupling group



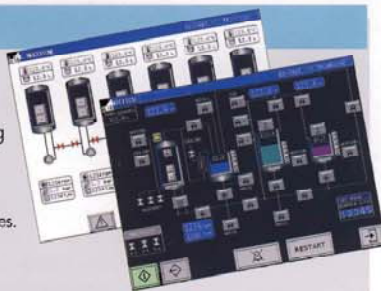
POLY
[p]ONE

RECURSIVE CELL
DYEING TECHNOLOGY



MAIN FEATURES

- » Patented recursive dyeing technology™
- » The pump is of helico-centrifugal type, made in stainless steel AISI 316. The pump is inverter-driven and controlled by a flowmeter or a differential pressure gauge, providing variable flow-rate capable adapting to most materials with very high control accuracy.
- » Low bath ratio.
- » "Dye-house in a box"™: no hidden costs for fitting, no civil works, no pit, no compromises.
- » Innovative PLC-BASED control system attached to the centralized UNILAB system. UNILAB brings at your fingertips in a fully, end-to-end graphical environment:
 - Real time control of your dyeing plant (including multiple POLYpONES and other machines)
 - Recipe/thermal cycles editing and management
 - Transfer of instructions to/from machine PLC.
 - Introduction of manual commands for total control of dyeing parameters
 - Complete logging facilities for total quality control



20221 - All information is subject to change without notice

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POLY [p]ONE

RECURSIVE CELL DYEING TECHNOLOGY

Dyeing with maximum production flexibility and minimum investment is the common dream of every dyer. Fully integrated mills that require utmost performance as well as commission dyers requiring variable lot size can now share the reality of POLYpONE. POLYpONE is the first and only dye-house capable of fully reconfiguring itself everyday according to his master's wishes thanks to a clever and patented combination of hardware and control software.

The quest for production flexibility

Several attempts have come to the market in recent years to cope with this issue, one of the last offerings being air pad dyeing machines that are able to process variable lot sizes. This comes at a price: very large installed capacities to offset inefficiency and



inability to reach high Right First Time standards such as those required by vat dyes. Pozzi Leopoldo introduces you to POLYpONE, the pre-packaged modular and expandable dye-house. Each POLYpONE dye-house is composed of a set of identical autonomous dyeing units, with a chosen module capacity, that are connected to each other in such a way as to permit every possible coupling arrangement for maximum flexibility. And, thanks to its patented control system based on a PLC, dyeing conditions are guaranteed to match across all units. As an example, consider a POLYpONE/6 dye-house, composed of 6 units with a capacity of 40 kg each which acts as a single dyeing machine; after the recipe has ended, the machine can be reconfigured to act as a 120 kg machine, one 40 kg machine and another 80 kg machine, with a simple touch on the UNILAB control panel. In this simple example, compared to a 240 kg machine with air pad, this either means half the time to complete the job or 30% less required machine capacity. You do the math!

Background

Nowadays dyeing lot sizes are extremely variable especially in the 10 to 300 kg range. This poses a serious problem to the investor in dye-house technologies: either he has to foresee a large installed capacity to cope with all possible combinations, or he can stay with air pad technology which allows for some degree of flexibility at the expense of lower reproducibility and increased production queues. Both cases are quite unsatisfactorily, as the ratio of actual usage of dye-house capacity to the nominal load capacity of the machines tends to zero when the production mix increases. Consider a 240 kg air pad machine for cotton yarns: theoretically such a machine can be employed to dye from a single layer of bobbins up to full capacity (please forget about liquor ration and quality for this example): you are wasting your machine capacity every time you are not fully loading it. In the end, to reduce such waste of capacity and to reach a reliable compromise, you will have to use such a machine only from 120 kg up (thus always reducing efficiency by 35% of capacity when operating with lots in the 120-240 kg range).

Traditional coupled machines

In recent years small multi color machines have come to the market, which extend the old concept of coupled machines to allow modular load capacity and increase dyeing flexibility, leading to an increase of the number of ways a lot of material can be processed in the machine. These machines are built around the master/slave concept, in which dyeing conditions are set and checked in a single kier and then replicated to the others. Also, the flexibility of such machines is somewhat limited, as the possible arrangements are to be foreseen in "hardware" using complex piping layouts that always sacrifice some capacity.

Why is POLYpONE the best technology for nowadays flexible dye-houses?

Pozzi has built an impressive experience in multi color machines and has developed a secure and simple system for limitless machine coupling: the Recursive Cell Dyeing™ technology. Using this patented arrangement of independent kiers, together with its special sensors and software, all dyeing combinations become possible, always ensuring perfect control of dyeing conditions and maximizing machine usage especially with very small lots. As an addition, POLYpONE is expandable, meaning that you can start with a single kier and add others later, as needed. POLYpONE comes already mounted, with minimum additional work required for startup, and is truly a small "dye-house in a box."™

DYEING FLEXIBILITY INDEXES

N. of kiers	Recursive cell dyeing	European competition
1	1	1
2	2	2
3	4	3
4	8	5
5	16	Not available
6	32	Not available

COLOUR COMBINATIONS

Possible combinations with four kiers machine from Pozzi Leopoldo and from other leading European manufacturers:

		Not available from the competition
		Not available from the competition
		Not available from the competition

What makes it stand ahead of the competition?

Compared to other multi color machines from leading European manufacturers, three facts make POLYpONE different from the others:

- Ability to control dyeing parameters in every kier independently, but in a linked fashion (forget about those poor master/slave shade matching you've seen in the past)
- Ability to do all the combinations, dyeing different colors at the same time, for true process flexibility with no waste of machine capacity.
- Available with up to six coupled kiers (the technology itself has no theoretical limit), compared to a practical maximum of four from the competition.

WASTED MACHINE CAPACITY vs REQUIRED LOT SIZE

