Low-cost fused cast procurement

In the second of a new series by the author, P. Carlo Ratto* talks exclusively to Asian Glass about how procuring fused-cast refractories at low cost brings along opportunities and risks, that need to be managed through specialized support, and supplies a few practical hints to that end.

In a previous article I debated on the reasons why low-cost fused cast manufacturers were not, commercially, as successful as we expected, and, on the other side, why western manufacturers did not succumb to the low-cost competition impact.

While the western world, and particularly the old continent is still struggling to emerge from a crisis that is turning into a major systemic quake, the emerging economies, home of the low-cost manufacturers, are also facing the beginning of a slowdown (China is discovering the single-digit range for GDP increase) which is, among others, direct consequence of the western economies jamming. The gigantic Chinese manufacturing machine, in particular, designed to feed western economies once doped by cheap credit, is and will be badly hit by the end of a western dream, which was the illusion that wealth could have been indefinitely generated out of nothing or, more precisely, out of financial quibbles.

The Chinese economy, though increasingly turning toward a pragmatic approach to financial rules, is still permanently in the hand of politics and obviously concerned about taking control of social issues. When their huge manufacturing machine is hit by the drying up of the export market and faces the risk of an unprecedented over-capacity crisis, China will have, once more, to rely on the huge internal market, that will be necessarily activated by increased spending capacity, further increasing the labor cost inflation and decreasing the competitiveness of the Chinese low-cost goods, refractories included.

In other words, the medium term effect of the western crisis will be to reduce the competitiveness of Chinese products.

Refractory pragmatism

Returning to refractories, what is the pragmatic suggestion for consumers that, for an obvious financial reason, are approaching low-cost procurement of fused cast refractories?

The fact that only major, globalized, glassmaking companies are systematically procuring fused cast refractories directly from the source is telling the truth behind the scene: buying these materials in such a way to maximize the financial advantage is a job for specialists, having developed the complex know-how necessary to minimize the associated technical risks while preserving the cost advantage; in most cases this capability has been developed through a try-and-error process which led (and still leads) to mistakes which have been somehow handled by big corporate, but could have had very harmful impact in smaller companies.

When medium-small companies have approached low-cost procurement of fused cast refractories, in most cases, it was through third parties which, with a variable entity of technical performance, have provided interface and services necessary to the glass industry and not available from the refractory manufacturer. This necessary intermediation has, of course, a remarkable cost for the provider and this translates, inevitably, into price mark-up for the final Customer: in other words, the competitiveness of a Chinese manufacturer is also based on the absence of overhead costs associated to R&D, technical marketing, customer services which in most cases are necessary and provided by a western interface acting as intermediary with western costs and, hopefully, some profit to the services provider.

The net result is a substantial reduction in the competitiveness of low-cost refractories which, in general terms, are considered a viable option when bringing along some delivered price competitiveness in the range of 25% or more. This rather complex intermediation, covering several technical aspects and a few commercial, is a big cultural difference versus the traditional approach of western suppliers who provide an all-round customer service as a package with the refractories.

So, back to the initial question: what can we suggest to a glassmaker approaching nowadays low-cost refractories procurement?

First: do not expect to be able handling the procurement process “as usual”: this assumption is almost invariably leading to disaster.

Second: unless you have developed your own know-how, refer to professional support for the selection of a suitable low-cost supplier. While in the western world you have few suppliers with a comparable level of quality and services, in China you have, literally tens of options ranging from garage sale to developing industry level; the problem is that it is very

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hard separating the profiles and sometime is even difficult understanding
who is really manufacturing and who is just buying and selling and often
not telling the truth. Selecting a handful of viable options, so as to start a
quotation process, can be a difficult task to perform, unless you rely on
professional support.

Third: documentation for a RFO: your drawings must be accurate, detailed
and double checked... this sounds obvious, but from the experience of a
fused-cast manufacturer, let me say that this is not always given for granted.
Glassmakers have grown confident in a standard de-bugging process
freely provided by the traditional fused cast manufacturers, sometime
including paving and arches subdivision, expansion joints computation and
distribution, re-draw and updated blueprints production. All these “given for
granted” services will be, in large measure, NOT available from your
low-cost selected manufacturer. Depending on the technical capability of the
intermediary, part or some of these services will be provided by this in-between
entity (at least, with a double leg (at least, to be triple) communications, the
language barrier and logistic difficulties make highly advisable having the
drawings debugging done upfront.

Fourth: supply all the directions, even those that you were not anymore
used to forward. These include casting gate location, expansion joints, fixed
points, casting direction for no-cavity and reduced-cavity blocks and every
thing making sense for a correct execution. I have seen casting gates in the
joint surface of superstructure walls, just because nobody requested to have
blocks cast from the cold face!

specs of western manufacturers, the vast majority of western glassmakers
have grown used to expect a generally accepted world-class level of quality
by attributes, dimensional tolerances and the like, and to inspect assemblies
based on commonly accepted criteria, even when not signed in a formal
document. A minority of glassmakers have developed their own tech. spec.
sets, which are negotiated with suppliers on the technical and commercial
ground. Do not expect to operate the same way with a low-cost supplier;
he might have very different (to your expectations) parameters or have no
degreed technical specifications at all. Technical specifications issue can be a
marginal point for traditional suppliers, but when you approach the low-cost
procurement, a glassmaker must discuss upfront with the manufacturer
or, more productively, with the intermediary, this topic. Discovering at the
moment of a furnace inspection that there are largely diverging opinions on
what a joint is or how much a dimensional tolerance should be, is something
that nobody wants to experience. Negotiating technical specifications is
also a task for specialized people, having a good idea of the manufacturer’s
capability and a precise knowledge of what can and what cannot be
accepted in a given glass furnace.

Sixth: Be pragmatic and patient: in spite of all the above, and depending
on your way to operate, when you will go to inspect your fused-
cast in one of the preferred Chinese locations (only in or around
Zhengzhou, Henan, there are more than 10 of these manufacturers!) or,
(if you have delegated to your intermediary the process of inspecting
your goods) when you will receive these refractories, be prepared to see
something different than the usual stuff produced in USA, EU or Japan.
Different does not mean necessarily worse; for certain aesthetic aspects,
the generally six-faces ground Chinese blocks may even look surprisingly
cleaner and smoother than the western as-cast skins. Here again, the key
word is “know-how”: a deep enough understanding of the technological
differences between a western and a low-cost process is the bottom line
for understanding how to translate observed differences into performance,
which is the main parameter for you to evaluate the ratio cost/benefits
behind a low-cost procurement.

There are different ways to approach the above steps at the best:

1) Glassmakers can decide to develop their own know-how, this is
possible for global companies already having a presence in the low-cost
territory and therefore reduced cultural, language divides. Local offices,
with some professional help, can learn how to manage low-cost suppliers
and invest time and resources, if the level of generated savings can
justify such an operation. This is unfeasible for medium-small size
companies having no global reach or experience and without a volume of
procurement balancing the needed investments.

2) Glassmakers can decide to largely rely on a local rep. (or other
kind of intermediary) for most of the above mentioned struggles. This
move implies a great deal of confidence on the intermediary structure,
particularly on its technical competence and not exclusively on the
commercial aspects; in my experience, only a minority of these players
have the minimum necessary profile and experience to manage such an
operation. In any case, a significant part of the low-cost competitiveness
will be absorbed by the intermediary and this is largely justified by the
costs relevant to keeping the servicing structure active: the final advantage
for a Glassmaker perspective is variable and to be judged case by case.

3) Glassmakers can decide to do by themselves, but utilizing professional
support provided step by step, on-demand, in relation to the above
mentioned points. This approach will leave to the Glassmaker the
advantage of maintaining a direct contact with the low-cost supplier,
preserve in its hands the final decision about selecting a supplier,
following up all the technical aspects of the procurement process till
the final inspection, at a fraction of the cost relevant to developing directly
the needed know-how (as per point 1). This process, operated through
outsourced support to the glassmaker structure, will also represent a
direct training of the structure that, as a side effect of the professional
support, will acquire, step by step, the needed know-how to become self
sufficient in the medium term.

After more than fifteen years spent helping refractorists to develop low-
cost alliances, glassmakers to develop and control low-cost suppliers
and low-cost suppliers trying to understand their own capability and technical
specifications, I can say that this job turned into a highly specialized
business, where evolution has been not always moving into direction
of simplification of the supplier-customer relationship, side by side with
the largely missed technological evolution and the manufacturing costs
inflation, which have averted manufacturers to develop services oriented
to technical marketing and customer support.

As a consequence, the gap between western glassmakers’ service
expectations and the level provided by low-cost manufacturers is still to
be bridged and, in some cases did actually increase.