

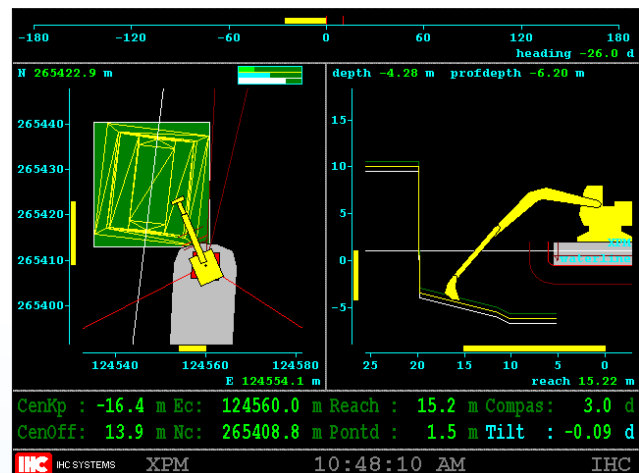
IHC Excavator Position Monitor - XPM



IHC SYSTEMS

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In recent years, the use of excavator dredgers has undergone dramatic changes. On one hand, widened technical possibilities, allowing higher accuracy, greater efficiency and reporting facilities, have widened their operational reach, on the other hand these traits became necessary to fulfil tightened governmental regulations, especially concerning the environment. IHC Systems has thrown its considerable technological weight behind the development of the newest Excavator Position Monitor (XPM). The Windows version was launched in 1994 and draws on the experience of developing over 150 excavator instrumentation sets over the last 15 years - a sure guarantee of purpose designed performance. A detailed reference list is available for review during discussion.



Cost benefits

The construction peculiarities of hydraulic excavators and the complex movements they perform, make maintaining an accurate dredging depth quite difficult, even in skilled hands. The way in which the revolving upper part of the machine moves, makes profiles unpredictable. Regularly checking of the results, by surveyor and the operator himself, takes more

time than can be called efficient. The Excavator Position Monitor largely overcomes these problems.

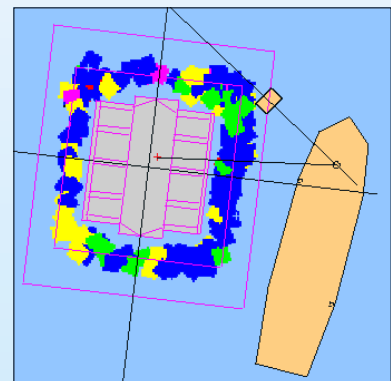
Eyes under water

The XPM 'sees', or rather 'feels', where human eyes can't, and serves thus as extension of the operator's senses. Since the device also helps steering the excavator more precisely, it facilitates considerable higher accuracy while at the same time cutting back sharply on survey- and control costs.

Predefined working areas

The XPM fits the preference of operations departments for predefining jobs. The predefined working area can e.g. be entered into the system on disk. While the machine carries out the work, an 'overlay' of the contours actually digged relative to the pre-set profile is logged on a

disk. This can be used as performance report. Connections with survey and/or positioning systems are available.



Simple to use

Generally, the system must be set in appropriate mode for the job, and will then look after itself, leaving the operator to concentrate on the digging, piloted by the XPM's information. The menu control structure on the screen, triggered by a dedicated keyboard, guides through a sequence of selections. The operator can select and arrange views and information to suit his handling of the job best.

Warning and control functions

Very helpful features are the system's swinglimit, outreach and pontoon protection messages. With dynamic effects in mind, the operator may decide to maintain certain margins from the maximum outreach, from the pontoon and/or to certain maximum swing angles, to prevent damage. With these values entered into the system, the dynamic mathematical model monitors



the margins and warns as soon as boom, stick or tool enters the 'virtual safety cocoon', allowing the operator to stop the unsafe movement in time. Automatic limiting devices are optional.

Optional

Excavators are for certain jobs often equipped with various combinations of buckets, polyps, rockhammers and sticks, and to a lesser degree with monoblock. A number of these tools and arrangements can be pre-programmed and

summoned with the keyboard.

Service facilities

'Self service on the spot'-facilities are provided in the system. The automatic self-diagnostic, triggered with starting-up, ensures the operator that the system works properly. If an error or warning appears, user's help is available on the screen to solve problems and suggest actions to the operator. Also IHC Systems can be consulted by phone or fax. If on-the-spot help is needed during operations, our service department is available for help world-wide 'around the clock'. Service training begins with a dedicated users' training course.

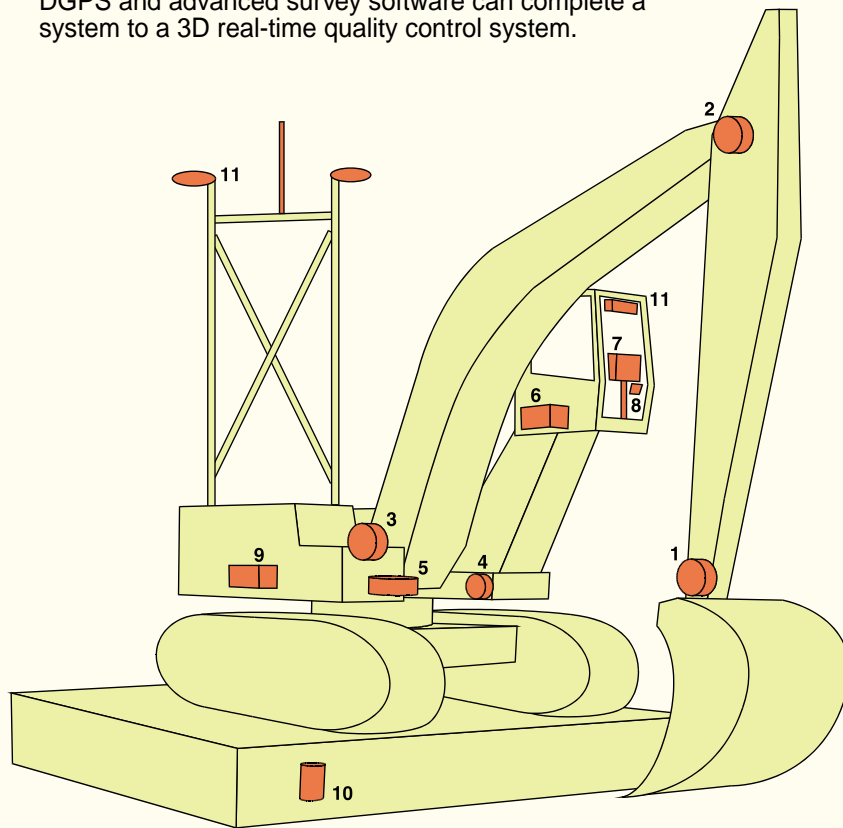
Technical specification

For all equipment mentioned in this brochure, detailed technical specifications are available, including a description of the full range of optional extras. They will be sent on request.



Excavator Position Monitor

The micro computer based Excavator Position Monitor serves as an universal position, data monitoring and presentation system for excavators. In its most extensive configuration it offers the possibility of complete excavator automation. Flexible coupling to DGPS and advanced survey software can complete a system to a 3D real-time quality control system.



Basic configuration XPM

- angle transmitter bucket (1)
- angle transmitter stick (2)
- angle transmitter boom (monoblock) (3)
- angle transmitter tilt (4)
- angle transmitter swing (5)
- computer unit (6)
- monitor on shockabsorber (7)
- keyboard (8)
- static inverter 24DC/220AC (9)

Optional

- **automatic corrections**
 - crane reach position correction
 - spudcarrier position measurement correction
 - pontoon draught correction (10)
 - radio tidal correction
 - laser telemetry tidal and draught correction
 - dual RTK DGPS pontoon draught, tidal and heading correction (11)
 - 3D communication with survey system
- **automation functions**
 - swing limitation
 - outreach limitation
 - pontoon damage limitation
 - profile/depth dredging
 - memory steering / full automation
- **presentations**
 - grid
 - borehole information
 - multiple profile
 - multiple bucket/tool view
 - pontoon/crane bearing presentation
 - screendump facility
 - remote view by radio link in the office



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