

## EDITORIAL

Dear Customers!  
Dear Friends!

While the construction industry in some European countries is slowly recovering it seems that we will have to wait for some more months here in the Middle East to see some light at the end of the tunnel. Although the media are full of promising news many tenders and especially project awards are delayed. Only Kuwait and Saudi Arabia are expecting a small construction boom but stimulated only by government projects while private investments are still very limited.

The actual situation is causing significant problems to all civil engineering and especially to piling contractors who would need urgently new projects to get their manpower, machines and equipment back to work.

The infrastructure sector looks more promising. Governments and municipalities are focusing on water, drainage and sewerage projects which is the reason that this issue of our ImecoNews is concentrating on machines and equipment for infrastructure developments, especially on various trench shoring techniques.

An increasing number of authorities and consultants are insisting on strict safety rules and do not tolerate that people are working in unsupported trenches if the excavation depth is more than 1.2 or 1.5 m.

Although all the equipment and systems highlighted in the following pages are not new to most infrastructure contractors we want to list the options once again for your reference.

I hope that you will find something of interest for your own work and I remain with

Best regards,

Karl Pacik  
Imeco / Austria

**Safety First!**

## UPCOMING EVENTS

We would be pleased to welcome you at our stand during the upcoming

### Saudi Build 2010

at the Riyadh International Conference and Exhibition Center / Booth No 215-3, Hall 3  
from 18<sup>th</sup> to 21<sup>st</sup> of October 2010  
Exhibition hours 10:00 to 21:30

Looking forward to seeing you!

## INTERNALS



I am very pleased to inform you that Mr. Matthias Pacik joined our team as sales representative to strengthen our presence and to improve our service in the UAE.

Matthias will call you during the coming weeks and I would really appreciate if you will give him the opportunity to introduce himself during a short personal meeting. At the same time he will update you regarding some new products in our portfolio (shoring systems, formwork for culverts, etc). In case of any immediate demand concerning new or used machines and equipment for infrastructure and civil engineering projects I kindly ask you to contact Matthias at +971.55.3052230 or matthias@imeco.at.

In addition Ms. Angela (+971.55.5501340), our office in Vienna and of course myself will be available at any time to provide you with our best possible service.

## — Imeco Product Line

### TRENCH SHORING

- trench sheets & sheet piles
- trench struts & bracings
- trench boxes
- slide rail elements
- pit and shaft shoring
- soldier pile shoring
- tie rods

### DEWATERING

- vacuum wellpoint pumps
- self-priming contractors pumps
- submersible pumps
- agitator & dredging pumps

### TUNNELLING

- auger boring machines
- small rock boring heads
- pipe jacking equipment
- pipe bursting machines
- EPB tunnelling machines
- hard rock TBMs

### PILING

- hydraulic add-on vibrators
- crane-suspended vibrators
- diesel impact hammers
- hydraulic impact hammers
- conventional piling leaders
- rigs with fixed & telescopic leaders
- vibroflotation equipment

### DRILLING

- hydraulic crawler drill rigs
- rotary heads & drifters
- double drill heads
- large diameter DTH hammers
- add-on auger drives
- drilling tools
- anchors & micropiles
- grouting & jetgrouting equipment

### FOUNDATION

- hydraulic foundation rigs
- equipment for CFA and SDA
- casing oscillators
- casings & drilling tools
- diaphragm wall grabs
- equipment for soil improvement
- bentonite equipment

### OTHERS

- steel forms for culverts
- hydraulic drum cutters
- telescopic excavator booms
- crawler cranes

## — How to Select the Best Shoring System

Let's start to look at the criteria which need to be considered for the selection of the most suitable trench shoring system (technically as well as commercially):

- total project length and construction period
- type, length and diameters of pipes to be installed
- trench depth (length of pipes installed in different depths)
- soil and groundwater condition (soil report)
- how many meters of trench must be kept open (shaft distance)
- is sloping allowed and at what depth shoring must be used (local specifications)
- distance to nearby structures (additional loads, vibration restrictions, etc)

All these points have to be considered to avoid a wrong choice. Two examples: If the maximum trench depth is 3500 mm trench boxes seem to be the ideal choice but if the pipe diameter is 1600 mm, the pipes would not fit below the bottom strut which is fixed at 1500 mm and consequently another shoring system needs to be chosen; or in case of a short trench of 6000 mm depth the use of sheet piles look most economical but if vibration to install the sheet piles is strictly forbidden a double slide rail or soldier pile shoring system might be the better choice.

Please do not hesitate to contact us if you want any assistance in selecting the best solution. We have more than 30 years experience in this field and supplied trench shoring equipment to many countries around the world.

## — Trench Struts

The simplest and most flexible shoring system consisting of trench sheets, sheet piles or timber boards. All of them need bracing, mostly consisting of spindles or struts, without or with a threaded part to adjust to the exact required trench width.

We offer a very wide range of different spindle systems for trench widths from 700 to 7000 mm and up to a safe working load of 400 kN.

In addition we also provide bracing for man-holes, shafts, tank excavations and much more. For our bracing solutions no trench is too small and no one too wide!



## — Sheet Piles



You have the choice between overlapping trench sheets and interlocking sheet piles. Trench sheets are mainly used for shallow trenches up to 6 m depth and no ground water.

Sheet piles are available either cold rolled (often called 'light' sheet piles) and heavy hot rolled sheet piles, both in U- or Z-shape. Length and section modulus of sheet piles must be calculated according to excavation depth, soil and groundwater condition and additional traffic and side loads. Z-sheet piles offer a slightly higher section modulus at the same weight per square meter as U-sheet piles but are more difficult to install.

Trench sheets and sheet piles are driven and extracted by hydraulic vibrators which leads us right away to the next section.

## — Sheet Pile Installation

To drive and extract trench sheets and sheet piles we have three main options:

1. hydraulic add-on vibrators
2. crane-suspended hydraulic vibrators
3. piling rigs with leader and vibrator

Let's have a short glance at the advantages of each of these sheet pile installation techniques:

## — Add-on Vibrators

Add-on vibrators are mounted to the boom of a hydraulic excavator of sufficient weight and power and driven by the hydraulic system of the base machine. It is the most cost effective way to drive and extract sheet piles of up to 7 m length (depending on the boom length). Extension by goose neck possible.



## — Crane Suspended Vibros

Crane-suspended vibrators need a hydraulic power pack which should be mounted to the counter weight of the crane. There is practically no limit in the sheet pile length and weight nor in the distance from the crane to the pile location.



## — Piling Rigs

Hydraulic piling rigs and especially our Mobilram are the ultimate choice for driving and extracting sheet piles and H-piles with unmatched performance and accuracy. The rigs are built on an excavator-type base machine with a fixed or telescopic leader and hydraulic vibrators of different capacity. In addition other leader attachments for a wide range of different applications are available (auger drives, sheet pile press, etc).





## — Trench Boxes



For more than 35 years steel trench boxes are the most widely used mechanised shoring equipment for pipelaying projects in depths of up to 4 m around the world. No other shoring method provides higher performance rates at less cost per square meter and use.

Our standard trench boxes are available in length from 3 to 5 m and provide a clear head room of 1.5 m below the bottom strut. Light boxes are available for various inner city works in shallow trenches.

All our steel trench shoring equipment is designed according to international safety standards and approved by the German TBG.



## — Slide Rails type Rolling Strut



Our double slide rails with Rolling Strut are the ultimate choice for most pipeline or culvert projects for trench depths up to 7.6 m. The system is installed using the lower-and-cut method where the excavator cuts parallel to the bottom of the shoring plates and pushes the plates and the slide rails down as excavation proceeds but here also the slide rails are guided vertically by the rolling strut and the massive, single horizontal bracing so that plate installation and extraction is easier and smoother than ever before.

No crane is required. All excavation and equipment manipulation is done by an excavator of sufficient size and reach. Differently to older slide rail systems the rolling strut can be pushed down or lifted by the excavator to any position to guarantee perfect trench access of the bucket during all stages of excavation.

Depending on the slide rail length the strut provides a clear head room of up to 3.8 m for large diameter and long pipes or for insitu concrete culverts.

## — Soldier Pile Shoring

Soldier piles are an interesting alternative shoring method when long and large diameter pipes have to be installed in great depth, when bracing should be avoided at all or at least reduced and when driving of sheet piles is not practicable. Standard steel shoring plates are positioned between vertically installed H-beams of designed length and sunken down by the excavator. Depending on the trench depth one or more rows of bracing can be placed. Instead of trench struts also soil anchors can be used.



*Please do not forget that the main purpose of the implementation of trench shoring equipment is the protection of your workers in the trench. Unfortunately we see every year a number of trench collapses with sometimes tragic results. Municipalities and consultants all over the Middle East are becoming more strict and insist on the use of proper trench shoring systems where ever sloping is not possible or not economical. In many countries suitable trench supporting systems must be used for all excavations of more than 1.2 or maximum 1.5 m depth.*



## — Dewatering



Groundwater table is often the most serious enemy for an excavation and therefore must be properly controlled. In most sandy soil conditions vacuum wellpoint filters connected by header pipes to a self-priming, vacuum assisted pump is the most efficient way to reduce the water level even before excavation starts.

Other methods to control groundwater are with deep wells, standard contractor pumps or electrical submersible pumps. For either application we offer a comprehensive range of dewatering equipment and accessories as well as pumps for sewerage over pumping, agitator pumps and dredging pumps.

## — Anchors and Tie Rods

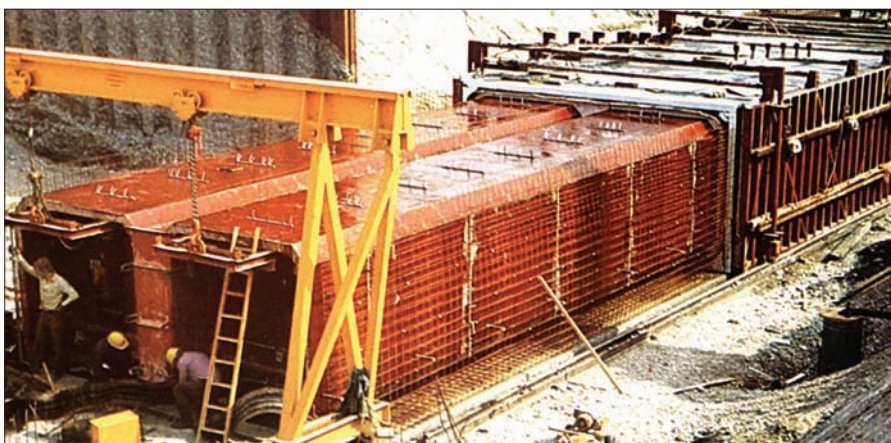


Soil anchors and tie rods are not really 'trench shoring' items but often required to support wide and deep excavations with sheet piles and soldier piles or for many marine projects (jetties, coffer dams and quay walls). For both applications we offer continuously deformed thread bars of grade S670 in a diameter range from 18 to 75 mm and a working load from 97 to 1691 kN plus all required accessories such as plates, nuts and turn buckles. The thread bars can be cut and extended by couplers to any required length which guarantees fast delivery and less storage cost.

## — Steel Forms for Culverts

Custom-made steel form work offer significant advantages to standard timber form work whenever large numbers of identical or very similar concrete structures need to be built. With our special steel forms for circular and rectangular culverts you can reach a production performance you never thought possible. Depending on size, site organisation and specifications you can

pour sections of up to 24 m length within 48 hours. The system consist of inner and outer steel form (both travelling on small carriers or a portal system) front form and sealing rails. Steel forms for culverts are available in standard and in monolithic version for even higher production rates. In addition we also supply special steel forms for shafts, chambers, columns and concrete stair cases.



## — Used Equipment

Presently we have following used machines and equipment for sale:

### Hydraulic Vibrators:

- APE300, 1842 kN, 2003
- APE400, 3200 kN, 2002
- ICE815, 1250 kN, 1999
- J&M360, 1539 kN, 2008
- PVE25M, 870 kN, 2000
- PVE38M, 1200kN, 2004
- PVE50M, 1600 kN, 2006

### Diesel Impact Hammers:

- D30-32, 1999
- D36-26, 2007
- D46-32, 2006

### Mobilram Piling Rigs:

- RE10/12, 600 kN, 1998
- RE12/14, 700 kN, 1991
- TM12/15, 800 kN, 1997
- TM13/16, 600 kN, 2008
- TM14/17L, 925 kN, 2002
- TM14/17, 925 kN, 1997
- TM18/22, 925 kN, 2003

### Foundation Rigs:

- BG20H, 21 m, 2007
- Casagrande B125, 2003
- Casagrande B170, 2007
- Delmag RH12, 2009
- Delmag RH16, 2007
- Delmag RH20, 2009
- Soilmec R312, 2004
- TEG TR220, 2007

### Crawler Cranes:

- Fushun QUY50A, 34 m, 2008
- Hitachi CX500, 36 m, 1997
- Hitachi CX500, 34 m, 1995
- IHI CCH500, 36 m, 1995
- IHI CCH1800, 75 m, 1997
- Kobelco CKE1800, 73 m, 2008
- Kobelco CKE2500, 67 m, 2005
- Kobelco CKE2500, 76 m, 2007
- Sennebogen S655R, 1999

Not all available items are listed and some may have been sold. Please contact us for further details and prices. Availability subject prior sale.