DRILLING RIGS AND ACCESSORIES

P.12
HEAVY DYNAMIC PENETROMETER AND DRILLING RIGS APAFOR®
- APAFOR® 50
- APAFOR® 100
- APAFOR® 200
- APAFOR® 220
- APAFOR® 330 and 340
- APAFOR® 430
- APAFOR® 450 RS
- APAFOR® 450
- APAFOR® 550 and 560
- APAFOR® 570 RS
ROTARY HEADS IN OPTION

P.23
WATER WELLS RIGS
APAFOR® 700 and 800

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DATA ACQUISITION
DRILLING DATA LOGGER EXPLOFOR®3
PENETROMETER DATA LOGGER APADYN®

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INJECTION PUMPS AND MIXERS
OUR RANGE OF DRILLING RIGS APAFOR®, VERSATILE, ADAPTED TO ALL YOUR NEEDS OF SOIL INVESTIGATIONS, FOR GEOTECHNICAL OR MINING WORKS.

HEAVY DYNAMIC PENETROMETERS

APAFOR® 50 // APAFOR® 100

APAFOR® 200 // APAFOR® 220-330-340

LIGHT DRILLING RIGS
Penetration test and control of trench
Pressuremeter boring
Destructive drilling
Mining exploration
Environment investigation
Water wells drilling
Auger
Roto-percussion (Hydraulic Top Hammer, Down The Hole)
Rotary Injection
Coring (conventional & wireline)
Overburden drilling:
STAF®, STAR et STAREX®
**APAFOR® 50**
Ref: D50_800000

**THE +**

- Very compact, easily transportable with his foldable mast
- Fully autonomous with thermal engine
- Stable standing position ensured by rugged stabilization feet

**APPLICATIONS**
- Penetration tests
- Sampling by hammering

**SKID AND EQUIPMENT**
- Mechanically welded steel skid mounted on wheels
- Blow counter with display

**MOTORIZATION**
- HONDA engine type GX 100

**DRILLING MAST**
- 3 mechanic stabilization feet
- Level indicator

**WEIGHT**
- 255 Kg

**SAFETY DEVICES**
- Steel frame aluminum cage

**PERFORMANCES**
- Variable hammer weight 10, 30, 50 & 63.5 kg
- Falling height 50 & 75 cm
APAFOR® 100

Ref: U30_800000
Ref: U30_800001 (hydraulic UFCMF)
Ref: U30_800002 (hydraulic)

THE +

- Compact, versatile and easily transportable
- Certified Hammering system CER 100 100 GR 0032
- Standards NF EN ISO 22476-2, NF EN ISO 22476-3 and NF P 94-063
- Rotation head and CE safety devices (in option)

APPLICATIONS
- Penetration tests (DPSTH and SPT) and trench control
- Sampling by hammering
- Drilling with auger (with option rotation head)

SKID AND EQUIPMENT
- Welded-steel skid mounted on rubber track
- Integrated electrical blow counter on control panel
- Level indicator
- Mechanic or hydraulic stabilization feet
- Boxes for rods, tools & cones

MOTORIZATION
- Gasoline engine 13HP VANGUARD

DRILLING MAST
- Hydraulic extraction system 8 tons with pedal

WEIGHT
- 980 Kg (without option)

DATA ACQUISITION (in option)
- ApaDYN® (see p.27)

SAFETY DEVICES
- 1 emergency stop button
- Protection cage (option rotation head)
- Working/safety mode

PERFORMANCES
- Hammering speed 15 to 30 blows / min
- Hammer weight 63.5 Kg
- Falling height 75 cm
- Moving speed 0 to 4.2 Km/h
- ROTARY HEAD IN OPTION
- Rotation speed 0 to 110 rpm
- Maximum torque 30 DaN.m
- Pull up force 1700 DaN

TRENCH CONTROL

MANY OPTIONS AVAILABLE ON REQUEST; PLEASE CONTACT US rotation head, extraction system...
APAFOR® 200

Ref: U20_800000

THE +

- Portable rig, ultra-light, easily transportable rapidly disassembled and reassembled for very difficult site access and confined space
- Very attractive power-weight ratio
- Vertical and tilted drilling to 45°

APPLICATIONS
- Rotary with auger, rotary bit and DTH drilling
- Coring in small diameter at shallow depths

SKID AND EQUIPMENT
- Aluminum frame with 4 handles for transportation
- 4 adjustable stabilization feet in steel
- Steel adjustable arms for tilted drilling from 0 to 45°

MOTORIZATION
- VANGUARD engine 16 HP or diesel engine 19 HP

DRILLING MAST
- Useful stroke: 2 m
- In aluminum
- Auger guide

PERFORMANCES
Rotation speed 0 to 360 rpm
In option 0 to 480 rpm
Max torque 127 daN.m
Pull-up force 1200 daN

OTHER PERFORMANCES AVAILABLE ON REQUEST

ULTRA LIGHT
100% aluminium frame

WEIGHT
- 362 Kg (without option)
**APAFOR® 220**

Ref: U2_7300302 (standard)
Ref: U2_7300303 (trailer)

**THE +**

- Very compact for difficult site access
- Very attractive power / weight ratio
- Very good working comfort

**APPLICATIONS**
- Drilling for Pressuremeter tests at lowest cost and soil investigation.
- Drilling with auger, rotary bit and Down The Hole Hammer
- Small diameter coring at shallow depth
- Penetration test DPSH/ SPT (in option)

**SKID AND EQUIPMENT**
- Mechanically welded steel frame mounted on a variable width rubber track operated from 70 to 100 cm
- 4 mechanical feet or hydraulic jacks for stabilization
- Proportional hydraulic controls
- Wireless remote moving control

**MOTORIZATION**
- 26 HP PERKINS diesel engine

**DRILLING MAST**
- Useful stroke: 2 m
- Hydraulic rod clamp 4 tons.

**ROTATION HEAD**
- Standard and fast rotation head
- Percussion hammer (option)

**WEIGHT**
- 1200 Kg (without option)

**DATA ACQUISITION**
- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

**PERFORMANCES**
- Rotation speed From 0 to 110 rpm
- In option (fast coring head) 0 to 420 rpm
- Maximum torque 125 DaN.m
- Pull up force 1700 DaN
- Moving speed from 0 to 4.9 km/h

**OTHER PERFORMANCES AVAILABLE ON REQUEST**

**SAFETY DEVICES**
- 3 emergency stops
- 2 safety lines
- Protection cage
- Working/safety mode
- 2 working lights

**LIGHT AND VERSATILE**

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**MANY OPTIONS AVAILABLE ON REQUEST, PLEASE CONTACT US**

Hammering systems, winch...
**APAFOR® 330 & 340**

Ref: U3_7100010 (330) / Ref: U3_7100303 (340)
Ref: U3_71000100 (340 trailer)

**THE +**

- Very compact for difficult site access
- Excellent attractive power / weight ratio

**APPLICATIONS**

- Drilling for Pressuremeter tests and soil investigation
- Drilling with auger, rotary bit and Down The Hole Hammer
- Micro piling
- Conventional coring
- Penetration test DPSH / SPT

**SKID AND EQUIPMENT**

- Mechanically welded steel frame mounted on a variable width rubber track operated from 70 to 100 cm or mounted on road trailer
- 4 mechanical feet or hydraulic jacks for stabilization
- Proportional hydraulic controls
- Wireless remote moving control

**MOTORIZATION**

- 32HP HATZ soundproofed diesel engine (APAFOR® 330) or 41HP DEUTZ (APAFOR® 340 and 340 on Trailer)

**DRILLING MAST**

- Useful stroke: 2 m
- Hydraulic rod clamps 4 tons

**PERFORMANCES**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation speed</td>
<td>0 to 70 rpm</td>
</tr>
<tr>
<td>In option</td>
<td>0 to 480 rpm (330), 0 to 505 rpm (340)</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>220 DaN.m</td>
</tr>
<tr>
<td>Pull up force</td>
<td>1700 DaN</td>
</tr>
<tr>
<td>Moving speed</td>
<td>0 to 4.6 km/h</td>
</tr>
</tbody>
</table>

**OTHER PERFORMANCES AVAILABLE ON REQUEST**

**SAFETY DEVICES**

- 3 emergency stops
- 2 safety lines
- Protection cage
- Working/safety mode
- 2 working lights

**DATA ACQUISITION**

(in option)

- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

**LIGHT AND VERSATILE**

**MANY OPTIONS AVAILABLE**

Hammering systems, winch...

PLEASE CONSULT US
APAFOR® 430

Ref: U43_70000

Compact drilling rig, versatile, perfect for transport on standard trailer (total weight < 3500 Kg)

Large speed and torque range thanks to the different range of motors offered and proportional distributors

APPLICATIONS

- Drilling with auger, rotary bit and Down The Hole Hammer
- Rotary-percussion drilling thanks to the hydraulic hammer
- Conventional coring
- Penetration test DPH / SPT (in option)

SKID AND EQUIPMENT

- Mechanically welded steel frame mounted on a fixed rubber track (width 140 cm)
- 4 hydraulic stabilization feet
- Wireless remote stabilization feet
- Integrated injection pump

MOTORIZATION

- Perkins engine soundproofed 36 HP

DRILLING MAST

- Useful stroke: 2 m
- Single or double rod clamps
- 4 tons
- Hydraulic winch and head sliding of rotation head

MOTORIZATION

<table>
<thead>
<tr>
<th>MOTOR</th>
<th>MOTOR</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>315</td>
<td>PERFORMANCE</td>
</tr>
<tr>
<td>0 to 356 rpm</td>
<td>0 to 180 rpm</td>
<td>0 to 491 rpm</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>92 DaN.m</td>
<td>180 DaN.m</td>
</tr>
</tbody>
</table>

Hydraulic hammer

250 joules / blow - 900 bpm

Pull up force 1800 DaN

Moving speed 0 to 4.6 km/h

OTHER PERFORMANCES AVAILABLE ON REQUEST

DATA ACQUISITION

(in option)

- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

SAFETY DEVICES

- 5 emergency stops
- 2 safety lines
- Protection cage
- Working/safety mode
- 2 working lights

WEIGHT

- 2200 Kg (without option)

MANY OPTIONS AVAILABLE

- Double rod clamp
- Hammering system

PLEASE CONSULT US

// COMPACT DRILLING RIGS AND ACCESSORIES

// DRILLING RIGS AND ACCESSORIES

PERFORMANCES

- Hydraulic hammer 250 joules / blow - 900 bpm
- Pull up force 1800 DaN
- Moving speed 0 to 4.6 km/h

OTHER PERFORMANCES AVAILABLE ON REQUEST

DATA ACQUISITION

(in option)

- ExploFOR® (see p.26)
- ApaDYN® (see p.27)
APAFORE® 450 RS

Ref: U45_700002 (HATZ or DEUTZ)

THE +

- Simple and robust versatile rig
- Very attractive power weight ratio
- Lowered center of gravity for better stability in rough sites

APPLICATIONS

- Conventional and wireline coring
- Drilling with auger, rotary bits and Down The Hole Hammer
- Micropiling
- Penetration test DPSH / SPT (in option)

PERFORMANCES

- Rotation speed 0 to 495 rpm (HATZ motor) - 0 to 470 rpm (DEUTZ motor)
- Torque 280 DaN.m
- Pull-up force 1900 daN
- Moving speed from 0 to 4.6 Km/h

OTHER PERFORMANCES AVAILABLE ON REQUEST

SKID AND EQUIPMENT

- Mechanically welded steel frame mounted on a fixed rubber track (width 140 cm)
- 4 hydraulic stabilization feet
- Remote moving control
- Injection pump (several options, please consult us)

MOTORIZATION

- HATZ diesel engine 48HP soundproofed or DEUTZ engine 62 HP

DRILLING MAST

- Useful stroke: 3.31 m
- Single or double rod clamps 8 tons
- Hydraulic winch and sliding of rotation head

ROTATION HEAD

- Swift injection swivel at the top of the rotation head
- Flange with pin thread 2"3/8 IF (other threads available)

WEIGHT

- 2750 Kg (without option)

DATA ACQUISITION (in option)

- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

MANY OPTIONS AVAILABLE
wireline winch, double rod clamps,...
PLEASE CONSULT US

// COMPACT DRILLING RIGS
APAFOR® 450

Ref: U4_5710101

THE +

Compact drilling rig, powerful and versatile
Large rotation speed and torque range

APPLICATIONS
- Drilling with auger, rotary bits and Down The Hole Hammer
- Rotary percussion thanks to its hydraulic Hammer
- Micropiling
- Penetration test DPH / SPT (in option)
- Conventional and wireline coring

SKID AND EQUIPMENT
• Mechanically welded steel frame mounted on a variable or fixed rubber track
• 4 hydraulic stabilization feet
• Wireless Remote moving control
• Injection pump (several options, please consult us)

MOTORIZATION
• HATZ engine soundproofed 48HP

DRILLING MAST
• Useful stroke: 2,25 m
• Single or double rod clamps 8 tons
• Hydraulic winch and head sliding

PERFORMANCES

<table>
<thead>
<tr>
<th></th>
<th>STANDARD</th>
<th>HIGH SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation speed</td>
<td>0 to 555 rpm</td>
<td>0 to 1030 rpm</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>225 DaN.m</td>
<td>145 DaN.m</td>
</tr>
</tbody>
</table>

Hydraulic hammer
180 joules / blow – 1300 bpm
Pull up force 5000 DaN
Moving speed 0 to 4.6 km/h

OTHER PERFORMANCES AVAILABLE ON REQUEST

ROTATION HEAD
• Injection swivel with floating shaft double thread Box R38 and 2"3/8IF Pin (other threads available on request)
• Rotary percussion head (variable volumetric displacement hydraulic motor), Top Hydraulic hammer

WEIGHT
• 2750 Kg (without option)

DATA ACQUISITION (in option)
• ExploFOR® (see p.26)
• ApaDYN® (see p.27)

SAFETY DEVICES
• 3 emergency stops
• 2 safety lines
• Protection cage
• Working/safety mode
• 2 working lights

MANY OPTIONS AVAILABLE
advance rock mast, hammering system...
PLEASE CONSULT US
APAFOR® 550 & 560

Ref: U38_710100 / Ref: U56_700000

THE +

Powerful and versatile drilling rig

Large speed and torque range thanks to their variable volumetric displacement hydraulic motor and proportional distributors

APPLICATIONS
- Conventional and wireline coring
- Drilling with auger, rotary bits and Down The Hole Hammer
- Micropiling
- Rotary percussion thanks to its Out-Of-The Hole Hammer
- Penetration test DPSH / SPT (in option)

SKID AND EQUIPMENT
- Mechanically welded steel frame mounted on a fixed rubber track (width 140 cm)
- 4 hydraulic stabilization feet
- Wireless remote moving control
- Integrated Injection pump (several options, please consult us)

MOTORIZATION
- Deutz engine 53 HP (550) / PERKINS engine soundproofed 60 HP (560)

DRILLING MAST
- Useful stroke: 3,31 m
- Single or double rod clamp 8 tons
- Hydraulic winch and head sliding

DATA ACQUISITION
(in option)
- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

SAFETY DEVICES
- 3 emergency stop buttons
- 2 safety lines
- Protection cages with safety lines
- Working/safety mode
- 2 working lights

APAFOR® 550
<table>
<thead>
<tr>
<th>PERFORMANCES</th>
<th>APAFOR®560</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation speed</td>
<td>0 to 510 rpm</td>
</tr>
<tr>
<td>High speed: 780 rpm</td>
<td></td>
</tr>
<tr>
<td>Torque</td>
<td>0 to 310 DaN.m</td>
</tr>
<tr>
<td>High speed: 182 DaN.m</td>
<td></td>
</tr>
<tr>
<td>Pull-up force</td>
<td>180 joules / blow - 1300 bpm</td>
</tr>
<tr>
<td>5000 DaN</td>
<td>5000 DaN</td>
</tr>
</tbody>
</table>

APAFOR® 560
<table>
<thead>
<tr>
<th>PERFORMANCES</th>
<th>APAFOR®560</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving speed</td>
<td>0 to 4.6 km/h</td>
</tr>
<tr>
<td></td>
<td>0 to 4.6 km/h</td>
</tr>
</tbody>
</table>

OTHER PERFORMANCES AVAILABLE ON REQUEST

MANY OPTIONS AVAILABLE
- double rod clamps, advance rock mast,...

PLEASE CONSULT US
APAFORE® 570 RS
Ref: U57_700001

THE +

- Simple, powerful and robust drilling rig
- Designed for the most difficult conditions

APPLICATIONS
- Conventional and wireline coring
- Drilling with auger, rotary bits and Down The Hole Hammer
- Micropiling
- Penetration test DSH / SPT (in option)

PERFORMANCES

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>REINFORCED TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation speed</td>
<td>0 to 550 rpm</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>290 DaN.m</td>
</tr>
</tbody>
</table>

Pull up force 5500 DaN
Moving speed de 0 to 2.14 km/h

OTHER PERFORMANCES AVAILABLE ON REQUEST

SKID AND EQUIPMENT
- Mechanically welded steel frame mounted on a fixed rubber track (width 140 cm)
- 4 hydraulic stabilization feet
- Remote moving control
- Integrated Injection pump (several options, please consult us)

MOTORIZATION
- Deutz Diesel engine 75 HP

DRILLING MAST
- Useful stroke: 3,31 m
- Mast length with extension: 6,20 m
- Single or double rod clamps 8 tons
- Hydraulic winch and head sliding

ROTATION HEAD
- Swift injection swivel at the top of the rotation head
- Flange with pin thread 2’’3/8 IF (other threads available)
- Hydraulic top hammer in option

WEIGHT
- 3800 Kg (without option)

DATA ACQUISITION
(in option)
- ExploFOR® (see p.26)
- ApaDYN® (see p.27)

SAFETY DEVICES
- 2 emergency stop buttons
- 2 working lights

MANY OPTIONS AVAILABLE
hammering system, wireline winch,...
PLEASE CONSULT US
ROTARY HEADS
IN OPTION

AVAILABLE FOR APAFOR® 200 / 220 / 330 / 340

1. FAST CORING HEAD
   APAFOR® 200
   Rotation speed: 0 to 360 rpm
   APAFOR® 220
   Rotation speed: 0 to 420 rpm
   APAFOR® 330
   Rotation speed: 0 to 480 rpm
   Variable torque: 0 to 32 daN.m

2. HAMMERING HEAD
   80 - 100 j/cp
   1650 cps/min

AVAILABLE FOR APAFOR® 440 / 450 / 550 / 560

3. MICRO PILING ROTATION HEAD
   APAFOR® 450
   Rotation speed: 0 to 210 rpm
   Variable torque: 0 to 310 daN.m

4. FAST CORING HEAD
   APAFOR® 440/450
   Rotation speed: 0 to 1030 rpm
   Variable torque: 0 to 145 daN.m
   FAST CORING HEAD
   APAFOR® 550/560
   Rotation speed: 0 to 780 rpm
   Variable torque: 0 to 182 daN.m
   MICRO PILING ROTATION HEAD
   APAFOR® 570
   Rotation speed: 0 to 300 rpm
   Variable torque: 0 to 505 daN.m

5. ROTOSTAF® ROTATION HEAD
   Configured for simultaneous bidirectional rotation and with percussion for the implementation of the Self Bored tube system for pressuremeter test (STAF® method)
**APAFOR® 700 & 800**

**THE +**

- Drilling in large diameter and high depth until 500 meters and more (depending on diameter)
- Configuration on truck (any type, tropicalized on request...), crawler or skid
- Specific technical optimum characteristics according to customer’s needs.
- Turnkey complete offer if wished (with equipments, air compressor, porter, etc...)

**APPLICATIONS**

- Destructive drilling in rotary - injection, Down The Hole Hammer and auger
- RC drilling (reverse circulation)
- Conventional and wireline coring
- Optimum for deep water wells drilling, geothermal, foundations and mining

**PERFORMANCES**

- **Pull-up force** 8 to 25 tons
- **Torque** from 800 to 2000 daNm
- **Rotation speed** from 200 to 800 rpm

**OTHER PERFORMANCES AVAILABLE ON REQUEST**

**DATA ACQUISITION**

(in option)

- ExploFOR® (see p.26)

**MANY OPTIONS AVAILABLE**

- Foam pump, wireline winch,...

**PLEASE CONSULT US**

**SAFETY DEVICES**

- 3 emergency stops
- 3 working lights

**SKID AND EQUIPMENT**

- Mechanically welded steel frame integrated to carrier
- 4 hydraulic jacks for stabilization
- Control over operating panel or articulated arm
- Hydraulic injection pump (performances according to model, until 2200 l/min)

**MOTORIZATION**

- Engine from 90 to 300 HP (according to model)

**ROTATION HEAD**

- Rotation head with 2 hydraulic engines
- Injection swivel air/water with floating shaft and compensation spring
- Hydraulic sliding of rotation head (inclined head in option)

**DRILLING MAST**

- Minimum useful stroke of 3.8 m with extension for extraction of rods/casings of 6 meters (bigger dimensions according to the model)
- Manipulation winch: force from 2.5 to 12 tons (according to models)
- Advance rock mast: stroke from 500 to 1000 mm
- Double rod clamps
EXPLOFOR® 3
DRILLING DATA RECORDER

Ref: N7_5900600
GeoBOX®: N7_5900900
GeoVision®- F: N2_5930002

THE +

- Adapted to all kind of hydraulic rigs
- Easy to handle and to install
- Piloting and data acquisition on GeoBOX® through WIFI
- Real time viewing of soil profile on GeoBOX®
- GPRS transfer to the office (in option)

EXPLOFOR®3 enables the recording of drilling parameters during the drilling process with a view to collect real time information on the soil profile. These data can also be used to choose adapted soil testing investigations (pressuremeter, SPT, etc.).

EXPLOFOR®3 RECORDS THE FOLLOWING PARAMETERS

- Advance rate (depth and penetration speed)
- Rotating torque of the rotary head
- Pushing force (thrust) on drilling bits
- Injection pressure of drilling fluid
- Optional: VIR® - a rotation speed sensor (APAFORE® 400 or higher), VIBRASOL® - reflective energy holding pressure, flow, GPS, etc.

Data from EXPLOFOR®3 can be directly processed on our geotechnical software GeoVision® through a USB key or GPRS transfer
**APADYN®**

**DATA ACQUISITION FOR PENETROMETER AND CONTROL OF TRENCH OR PLATEFORM COMPACTION**

Ref: N7_5900800  
GeoBOX®: N7_5900900  
GeoVision®-D: N2_5910007

---

**THE +**

- Easy to handle and to install  
- Piloting and data acquisition on GeoBOX® through WIFI  
- Real time viewing of soil profile on GeoBOX®  
- GPRS transfer to the office (in option)

APADYN® allows data acquisition for dynamic penetrometer (blow counting according to the NF EN ISO 22476-2) as well as control of trench or platform compaction (according to the NF P 94-063 standard) and SPT (NF EN ISO 22476-3).

**APADYN® RECORDS THE FOLLOWING PARAMETERS**  
- Blows number or dip per blow  
- Depth aimed and reached  
- Compaction reference curve  
- Pipes positioning  
- Sounding localization  
- In option: GPS, mast inclination

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**SPECIFICITIES OF CONTROL OF TRENCH OR PLATEFORM COMPACTION:**

- hammering system has been approved by a certification CER 100 GR0032 for a GTR classification and densification aim  
- In accordance with COFRAC requirements

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Data from EXPLOFOR®3 can be directly processed on our geotechnical software GeoVision® through a USB key or GPRS transfer.
### INJECTION PUMPS AND MIXERS

Pumps are delivered with a 5 meters suction pipe and a strainer.

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#### TRIPLEX INJECTION PUMPS FOR CLEAR WATER AND DRILLING MUD

#### TRIPLEX INJECTION PUMPS WITH THERMAL ENGINE

<table>
<thead>
<tr>
<th>Description</th>
<th>Max Pressure</th>
<th>Max Flow</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection valve pump 5.5 HP engine – V75</td>
<td>30 bar</td>
<td>58 l/min</td>
<td>C3 0101604</td>
</tr>
<tr>
<td>Injection valve pump 9 HP engine – V105</td>
<td>30 bar</td>
<td>85 l/min</td>
<td>C3 0101605</td>
</tr>
<tr>
<td>Balls pump 9 HP engine – Gama 80</td>
<td>40 bar</td>
<td>76 l/min</td>
<td>C3 0101601</td>
</tr>
<tr>
<td>Balls pump 9 HP engine – Sigma 100</td>
<td>40 bar</td>
<td>100 l/min</td>
<td>C3 0101604</td>
</tr>
</tbody>
</table>

#### TRIPLEX INJECTION PUMPS WITH HYDRAULIC ENGINE

<table>
<thead>
<tr>
<th>Description</th>
<th>Max Pressure</th>
<th>Max Flow</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection valve pump – HY - V75</td>
<td>30 bar</td>
<td>68 l/min</td>
<td>C0 0101601</td>
</tr>
<tr>
<td>Injection valve pump – HY - V105</td>
<td>30 bar</td>
<td>105 l/min</td>
<td>C2 0301500</td>
</tr>
<tr>
<td>Balls pump – HY - Gama 80</td>
<td>40 bar</td>
<td>80 l/min</td>
<td>C2 0101601</td>
</tr>
<tr>
<td>Balls pump – HY - Sigma 100</td>
<td>40 bar</td>
<td>100 l/min</td>
<td>C2 0101604</td>
</tr>
</tbody>
</table>
PISTON PUMPS FOR CLEAR WATER, MUD AND CEMENT GROUT

### PNEUMATIC VERSIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Max Pressure</th>
<th>Max Flow</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-PN-25-2900</td>
<td>25 bar</td>
<td>49 l/min</td>
<td>C1 0101603</td>
</tr>
<tr>
<td>P-PN-40-2900</td>
<td>40 bar</td>
<td>49 l/min</td>
<td>C1 0101602</td>
</tr>
<tr>
<td>P-PN-15-4700</td>
<td>15 bar</td>
<td>79 l/min</td>
<td>C1 0101601</td>
</tr>
</tbody>
</table>

### HYDRAULIC VERSIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Max Pressure</th>
<th>Max Flow</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-HY-40-6500</td>
<td>40 bar</td>
<td>108 l/min</td>
<td>C2 0101602</td>
</tr>
<tr>
<td>P-HY-25</td>
<td>25 bar</td>
<td>60 l/min</td>
<td>C2 0101600</td>
</tr>
</tbody>
</table>

### MIXERS FOR DRILLING MUD AND CEMENT GROUT

<table>
<thead>
<tr>
<th>Description</th>
<th>Speed</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic</td>
<td>0 - 1200 rpm</td>
<td>C8 0101301</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>0 - 3 000 rpm</td>
<td>C7 0101301</td>
</tr>
</tbody>
</table>

### ACCESSORIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand pump – injected volume = 600 ml / return</td>
<td>C6 0101601</td>
</tr>
<tr>
<td>Hand pump – injected volume = 3000 ml / return</td>
<td>C6 0101602</td>
</tr>
<tr>
<td>Oil feeder for pneumatic equipment</td>
<td>H3 09000703</td>
</tr>
</tbody>
</table>