KEESTRACK Press Release

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Full electric processing with KEESTRACK

"Electrifying results"

Five end products with a production capacity of 180 tph and total diesel consumption of 60 litres per hour – those were the impressive key results of a multi-stage crushing and screening combination of four mobile Keestrack plants first publically tested last autumn. The tests were conducted during the customer days of the Norwegian Keestrack dealer Fredheim Maskin and formed part of the technical premiere for the "full-hybrid" drive technology of the international processing specialist. Debuting within the full-electric combination powered by an external gen set were the all-new jaw crusher B4e and the mobile cone H4e – both with new drive systems, using diesel power only when needed.

Succesful premiere

Using the traditional „Fredheim October Days" as platform to present its new full-hybrids was well planned by Keestrack. With again over 40 plant exhibits of several brands, the event in Spydeberg, some 30 kms south-east of Oslo, exceeds year by year the size of normal in-house shows and regularly attracts specialist visitor from all over Scandinavia and many other international markets. A record of 650 sold Keestrack plants in Norway and Sweden since 2005, made the company led by the brothers Per Olav and Svein Fredheim to one of the mayor national Keestrack dealers – also reflected by the 2016 "Dealer-of the-year" award, presented for the eighth time to Fredheim.

Highlighting the Fredheim machine demonstration with over 20 working plants in a granite quarry was the full-electric tracked processing line with the jaw crusher Keestrack B4e with stacker S5e (for 0/20 pre-screen), the H4e cone with 3-deck-afterscreen module and the final 2-deck-classifier K3e for five end product fractions. With a feed size of 600 mm and different sets of end products, incl. double crushed chippings (0/2 … 16/22; 0/4 … 16/22), the combination reached a maximum production of 180 tph. Without activating their onboard-diesels all machines were powered through a single 500-kVA external gen set. Consumption analyses over several days gave average values of under 60 litres per hour.

„We were surprised by these results," states Keestrack President Kees Hoogendoorn. "Even if these values are quite specific, they clearly reflect the high economic potential of our full-hybrid technology. Applied in a mobile multi-stage processing line, as presented here for the first time, it offers great advantages for the contractor. Not only in daily practice, but specifically in long-term evaluation if we consider lower maintenance costs and longer service

life," resumes Hoogendoorn the most important reasons for the consequent development of alternative drive concepts in his company.

Long experience

And indeed, at Keestrack the new „Full-hybrids" stand in a row with the early introduction of modern load-sensing systems in diesel hydraulic drives and the partial electrification of crushing and screening plants through the wide use of electric motors on conveyors and separator components. "Every new level in development brought important savings in diesel consumption," explains Kees Hoogendoorn referring to the 20 – 30 % improvement steps, made through modern hydraulics, diesel-electric components and the external "plug-in" operation, which is today available throughout all Keestrack plant technologies. "With their substantially smaller hydraulic circuits our hybrid systems provide advantages in maintenance, availability and safety – especially when working in environmentally sensitive areas."

While the screeners and conveyors on hybrid Keestrack classifiers and stackers are operated electrically – the diesel hydraulics only supplied hydraulic cylinders and crawlers – all Keestrack crushing units were up to now only powered directly through the on-board diesel engines. "Here electric drives supplied via external gen sets or mains certainly offered high saving potentials, but without compromising the plants' mobility, crushing performance and productivity, which depends today also on optional modules with high power demands," Kees Hoogendoorn characterises the challenges in development.

„Zero-emission" crushing

As a first result of these technology specific projects Keestrack presented on previous Bauma the track mobile cone crusher H4 with 345 kW/330 KVA diesel/generator module, 132 kW electric drive for the crusher and extensively electrified conveyors and screening components. Despite its comprehensive equipment including an optional 3-deck after-screen with oversize conveyor the compact plant weighs only transport friendly 46,0 tonnes and can be operated "plug-in". Now Keestrack presented in Norway the full-hybrid model H4e, featuring an additional electric motor/hydro pump unit to supply all installed hydraulic functions (feeder, hydraulic cylinders, tracks) via external current without starting the diesel engine.

The all-new jaw crusher Keestrack B4/B4e is optionally available with conventional diesel-hydraulic drive or as full-hybrid "e-version". With active 2-deck pre-screening and the re-designed 1100x700 mm jaw crusher featuring the patented N.S.S. overload protection the new model follows on the successful Apollo/B4 for flexible recycling applications or medium-sized quarry operations with capacities up to 300 tph. Despite new optional equipment (eg. 1-deck afterscreen module with oversize conveyor) the new designed frame incorporating elements of high-strength Domex steel qualities guarantees low transport weights (max. 49 tonnes). The full-hybrid Keestrack B4e is equipped with a 242 kW diesel engine and a 225

kVA on-board generator. The latter supplies the 110 kW electric crusher motor, all other electric drives on conveyors and screens and the separate 55 kW electric motor/hydro pump unit for all installed hydro drives (cylinders, tracks). During “plug-in” operation (external gen set/mains) the diesel engine doesn’t have to be started, the whole energy management is controlled automatically including the electric supply of a secondary unit (screen, stacker).

Contact: www.keestrack.com

Further information:
Keestrack N.V.
Marcel Kerkhofs
Marketing Manager
Tel.: +32 (0)89 51 58 51
Email: marketing@keestrack.net
www.keestrack.com

Captions:

Keestrack_Electric_1:
At the Autumn customer show of Fredheim Maskin the KEESTRACK “plug-in” production convinced with very low fuel consumption.

Keestrack_Electric_2:
Compact design: Following the successful Apollo-series the new KEESTRACK B4/B4e was re-designed to optimize transport weights.

Keestrack_Electric_3:

Debuting on Bauma 2016 the KEESTRACK cone crusher H4 was now presented in the full-hybrid version H4e.

Keestrack_Electric_4:

The 1100x700 jaw crusher on the KEESTRACK B4e is driven by a 110 kW electric motor.

Keestrack_Electric_5:

The new KEESTRACK B4e is equipped with an additional electric motor/pump unit to supply installed hydro-drives.

Keestrack_Electric_6:

Very satisfied with good test results: KEESTRACK Group President Kees Hoogendoorn.

(Illustrations: Keestrack)