

PROTAGO

ONE OF THE SAFEST ANGLE GRINDERS
WORLDWIDE



reddot winner 2022
best of the best



SAFETY HAS A NEW STANDARD – THE PROTAGO

PROTAGO

SAFE IN YOUR HANDS

DID YOU KNOW?



27%

of all reportable occupational accidents in the category of hand-held power tools are caused by angle grinders.*



16%

of accidents at work involving grinders result in the person forced to retire from work permanently.*



86%

of all accidents can be traced back to a loss of tool control during the task.*

WE HAVE THE SOLUTION

* Statistics into accidents at work in 2020 by the DGUV (German Social Accident Insurance)



Shared **innovation**

THE BOUYGUES APPROACH

Following a serious accident in one of the subsidiaries of Bouygues Entreprise France-Europe, the decision was taken to ban the use of all compact angle grinders (115mm-150mm) in this subsidiary. The group found that actually accidents with this tool were multiplying across all their subsidiaries and made the decision to extend the ban to all Bouygues Entreprise France-Europe subsidiaries, then to Bouygues Travaux Publics (Civil Engineering).

In 2017 the decision was made to extend the ban to all Bouygues subsidiaries, following this Bouygues set up a steering committee who were tasked with defining the specification for hand held power tools to ensure all operators use the most efficient and appropriate tools in compliance with their health and safety requirements.

TARGET: ZERO ACCIDENTS

Bouygues Construction's top priority is the health and safety of the teams who work on its construction sites. Aware of its responsibility, Bouygues Construction has decided to go one step further, introducing a standard based on 12 "basic rules" applied on all construction sites in all 80 countries where the Group is active.



WHO ARE BOUYGUES?

With 52,800 responsible and committed employees in more than 60 countries, Bouygues Construction designs, builds and operates projects in the sectors of building, civil works and energies and services. A leader in sustainable construction, the Group sees shared innovation as its primary added value and ensures that health and safety are its top priorities with their commitment to 'zero accidents'. It has pledged to cut its greenhouse gas emissions by 30% by 2030 and offers its customers a wide range of low-carbon solutions. In 2020, Bouygues Construction generated sales of €12 billion.



52,800
Employees
worldwide



60+
Countries
where
Bouygues
is present



€12.8
Billion
turnover



58%
Turnover from
international
sales

WHO ARE FEIN?

FEIN is the specialist brand of quality and reliable power tools and accessories for the metal working and interior sectors. As the inventor of the first electric hand held power tool, FEIN has been developing innovative and unbeatably efficient solutions for everyday use by industry and manual trades for over 150 years, and now has a wide range of power tool products. FEIN prides itself on its application-based approach, which means it is known for providing trusted consultancy to its customers, enabling companies to source the best solution for the job. By providing the best quality and reliable products and expertise, FEIN delivers true value-for-money, every time.



850
Employees
worldwide



66
Sites
worldwide



500
Patents
and patent
applications



80%
Made in
Germany
at company
headquarters

HOW THEY CAME TOGETHER?

Following the appointment of the steering committee and the identification of the safety concerns around the use of compact grinders on site.

The Group invited tenders from manufacturers to develop a prototype that met its strict safety requirements. These included features such as compulsory two handed operation, non-removable safeguard, an additional safeguard cover and anti-kickback function. Additionally they required a non-removable side handle and electric brake function.

They chose FEIN's proposal, which met the precise technical specifications and guaranteed a tool that met Bouygues Construction's health and safety standards.



PROTAGO

SAFE IN YOUR HANDS



5,400
RECORDED INJURIES

Angle grinders are classified amongst the most dangerous tools in industry, ranking third most dangerous, with 5,400 injuries recorded annually

Source: RoSPA



22%
FATAL ACCIDENTS

In 2019, over a fifth (22%) of fatal accidents at work in the EU were as a result of losing control of a machine, tool or transport/handling equipment

Source: Eurostat



30%
CAUSED BY ANGLE GRINDERS

In Germany, almost 30% of reportable workplace accidents involving hand tools were caused by the use of the hand-held, power-operated angle grinder. In 84% of these cases, the accident was caused by a loss of control over the power tool

Source: DGUV (German Social Accident Insurance), 2019



39
FATAL INJURIES

In 2020-21 alone, the UK construction sector saw 39 fatal injuries

Source: HSE



£5.3m
TOTAL FINES

In 2020-21, HSE issued £5.3 million in total fines, at an average of around £80,000 per conviction, to construction organisations that had failed to comply with health and safety regulation/due to inadequate health and safety standards

Source: HSE



1/2 ACCIDENTS
DUE TO OPERATOR ERROR

Accident statistics indicate that nearly half of all accidents involving abrasive wheels are due to an unsafe system of work or operator error

Source: HSE

CHALLENGES

STATS

28.9% of reportable workplace accidents involving hand tools in 2019 were caused by the use of hand-held, power-operated angle grinders, Flex and cut-off machines.

In addition, **11.5%** of new accident annuities were due to accidents involving these products.

A closer look at how the accident occurred shows that it was mostly a loss of control over the power tool that triggered the accident (approx. **84 %**)

It is therefore decisive whether the accident victim was skilled in the use of the power tool or not.



SOURCES OF DANGER

The following sources of danger should be particularly emphasized when operating with angle grinders/cut-off machines:

- The wheel guard is not mounted & the grinding wheel breaks and the fragments injure the user.
- Working with one hand on the machine & the user holds machine with only one hand. This behaviour causes about 40% of the accidents.
- Danger due to a kick-back the grinding wheel blocks and causing the machine to be suddenly jump away from the work piece

CONSEQUENCES

- Serious injury to the operator
- Liability to the employer
- Loss of productivity
- Long term effects to the operator



WE HAVE THE SOLUTION



Shared innovation

- + Tool-free quick clamping system
- + Suitable for cutting, polishing, grinding or sanding surfaces
- + 2.3 kg weight (without battery)
- + Ergonomic grip
- + Electronic overload protection and brake

18 V, 5.2 Ah, 0.75kg
2500 - 8500 rpm
125 mm | 2.3 kg
weight without battery



Powered by BOSCH



+ **Integrated FEIN PowerDrive brushless motor** is completely encapsulated to protect users from excess debris

+ **PowerDrive motor is 30% more efficient** to that of a 1,100-watt corded machine, ensuring exceptional performance when working with metal

+ **Anti-kickback function** detects any sudden movements, such as loss of control, and automatically shuts off

+ **Adjustable rotation speed** between 2,500-8,500 rpm is ideal for various applications

+ **Fatigue-free working** thanks to narrow grip dimensions, compact design and a well-balanced low weight

+ **Users unable to operate with one-hand** due to an integrated 'AutoStop' dead man's switch and permanently mounted non-removeable additional handle

+ **Upon one hand being removed,** power to the tool will automatically disable

+ **Non-removeable wheel guard** which protects users from flying fragments

+ **Non-removeable safety hood**

+ **Additional six-position adjustable handle** enables flexible working in compact spaces



THE PROTAGO

THE SAFETY GRINDER IS THE ANSWER TO INCREASING SAFETY REQUIREMENTS.



Shared **innovation**

Together with Bouygues Construction group, FEIN has developed a globally unique angle grinder that is set to revolutionise safety on construction sites or in the workshop and whose use will consequently reduce the number of work-related accidents.



USP'S

- Protection against flying fragments by a non-removable wheel guard
- Machine can only be operated with two hands due to integrated dead man's switch and permanently mounted additional handle
- Additional handle lockable in 6 positions for safe guarding even in hard to reach situations
- Kick-back control which significantly reduces the risk of an unexpected kickback of the machine
- Automatic switch off function

BENEFITS



PROTECT THE HEALTH OF YOUR EMPLOYEES

By using the Protago Safety Grinder, you can significantly reduce the number of workplace accidents on the construction site or in your company.



SAFETY THAT PAYS OFF

Less accidents at work and the ensuing costs that can occur due to accidents at work ultimately save time, money and most importantly lead to a efficient workforce.



BETTER PRODUCTIVITY

Reducing workplace accidents with the Protago safety grinder ensures ongoing productivity.



EASE OF USE & CAPABLE OF ALL APPLICATIONS

The Protago grinder has been designed not only with safety in mind but also the needs and wants of the operator to reduce fatigue, lessen unnecessary pressure applied to the machine and still operate as normal for all grinding applications.

Ultimately, the Protago is a unique operating concept that almost fully eliminates the risks associated with improper operation.

PROTAGO

HISTORY IN THE MAKING

TWO HANDED OPERATION

The Protago safety grinder comes with a permanently fitted additional handle which allows for the two-handed operation with integrated dead man's switch. These features were integral to the making of the Protago. In order to give the operator the necessary flexibility to perform all grinding applications and counter the argument usually used for removing the side handle, FEIN used unique testing methods to achieve maximum results.



IRONHAND® – THE SYSTEM

FEIN used the Ironhand® glove to select the most suitable handle for the grinder and the user. They used this method to ensure the operator had ease of use when applying pressure to the dead man switch and reduce fatigue. The Ironhand® system gave live feedback which assisted FEIN in the development of the handle. This method had never been done before in tool design.

- Two layered system
- 5 fingered glove
- 5 pressure sensors
- Cord for tendons and data transmission
- Backpack with servomotors and battery
- Remote for operator control



A UNIQUE TESTING METHOD

- FEIN tested each handle prototype and the standard handle in two situations: grinding and cutting
- For each handle, we experienced that the switch position is very important and some adjustments were necessary to ensure its efficiency and the ease of use
- The user experience flagged any problems and helped shape the tool in terms of suitability.



FEIN

ONE LESS THING TO WORRY ABOUT

RED DOT DESIGN AWARD FOR FEIN SAFETY ANGLE GRINDER PROTAGO

At the international Red Dot design competition, the new PROTAGO cordless safety angle grinder received the special "Best of the Best" award in the "Tools" category. During the development of the PROTAGO, the focus was on both its innovative safety concept and its consequent user orientation. At the same time, a lot of emphasis was placed on good design.

"Well thought-out product design is becoming increasingly important for our customers," says product designer Matthias Wunderling, who submitted the PROTAGO for the Red Dot Award together with Christian Weber, the product manager responsible. The fact that the jury even gave the PROTAGO the highest award, 'Best of the Best,' is considered by Christian Weber to be a great success for FEIN.

"The award enjoys a very high reputation internationally. With this award, we as a brand receive an excellent platform to become even better known," says Christian Weber. The Red Dot is a quality seal for outstandingly designed products in a wide range of categories and is awarded annually by an internationally reputable jury.



"The PROTAGO cordless angle grinder impresses with its high-quality design and the well-thought-out functionality of its innovative, six-way adjustable auxiliary handle. Its clearly structured design conveys power and embodies an impressive advancement. With its exclusive two-hand operation and a safety hood that can no longer be removed by the user, this angle grinder sets new standards in terms of safety and ergonomics for such a tool."

Statement from the Jury.

The Red Dot Award: Product Design dates back to the 1950s. Each year, the competition goes in search of outstanding design achievements and product innovations. The decisions on awarding distinctions are taken by an independent panel of experts, the Red Dot Jury. This year's jury comprises 48 judges from 23 countries.

What they all have in common is their design expertise, which they have accumulated during their careers as professors, consultants, designers or journalists. The jurors consider and assess each entry. The products do not compete with each other. Instead, they are assessed on a standalone basis.

QUOTES & ENDORSEMENTS

Having worked in the industry for the past 15 years, I have seen numerous products launched and come to market, and for me The Protago is by far the most exciting new product I've seen.

I started at FEIN as a product specialist visiting end users and as this is still a huge part of my role, I have had numerous conversations with various stakeholders in the industry about the solution to grinder safety. Most of these conversations resolved around the requirement of a paddle/deadmans switch and possibly some kind of breaking system. This still left a grinder product open to single handed use with the ability to remove the guard.

The PROTAGO, however, removes nearly all of the risks around use of grinders and ensures the safety of the operator can't be compromised.

I've presented and demonstrated the product to numerous Health and Safety officers, production teams and project managers at end users, from smaller fabrication and engineering companies to large national defence contractors and the response has always been the same, this is a product which will reduce injury in the work place and also removes the ability for operators to put themselves at risk when using the tool.

From an operators prospective the feedback has been similar, nobody sets out to purposely injure themselves, accidents happen and often because we become complacent, with the PROTAGO it is virtually impossible to be complacent, it gives the performance required while having all the safety features needed to allow excellent work progress in the safest way possible.

Nathan Ford, National Industrial Manager



For me The Protago is not just another product. It has the potential to make a real difference in reducing the number of work place related injuries involving compact grinders use and I'm excited to be a part of that change.



NEXT STEPS

VIEW THE PROTAGO



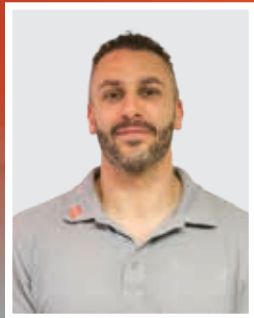
<https://youtu.be/EBZx7POwqZw>

CONTACT

+44 (0) 1327 308 730

FGB_Demo@fein-uk.co.uk

PUT SAFETY FIRST



NATHAN FORD

National Industrial Manager

+44 (0) 7788 131 213

Nathan.Ford@fein-uk.co.uk



FEIN Power Tools UK



FEIN.UnitedKingdom



FEIN_UK



FEIN_UK

