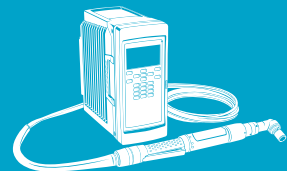




Tensor ES with Power Focus 600

Error proofed tightening in
quality critical assembly.



Atlas Copco

GOING ELECTRIC IS EASY



With the Tensor ES tools and the Power Focus 600 you have an easy and intuitive system for error proofed tightening in quality critical assembly. **An accuracy of +/- 7,5% over six sigma** combined with robustness and customised ergonomics, gives you a lean and efficient workstation that reduces energy consumption while it gets the job done – Just set target torque and you are ready to go.

85%

Switching from pneumatic tools, can reduce your energy consumption by up to 85%.

Take **productivity** to an entirely new level for electric tools with the winning combination of Atlas Copco Tensor ES with Power Focus 600 and the TurboTight strategy. Our key aim is to meet your needs for improved **quality** critical assembly and increase the total value of ownership.

**Go Electric now
– We call it easy
transformation!**

ENVIRONMENTAL



QUALITY



ERGONOMIC



PRODUCTIVE



USER FRIENDLY



Atlas Copco
IAM Joint control
Power Focus 600

Atlas Copco
IAM Station control
Power Focus 600

ALL THE REASONS YOU COULD POSSIBLY NEED



ENVIRONMENTAL



Reduce carbon emissions to follow new regulations and demands on low environmental impact. With Power Focus 600 and Tensor ES you can lower the energy consumption of both tool and controller.

QUALITY



Reduce warranty costs and defects with a Torque Transducer with accuracy of 7,5% over six sigma, Torque control, a Three step strategy and reliable Error Proofing.



Eco design achievements Tensors ES

RUGGED DESIGN

Through Atlas Copco's experience of producing durable tools with built-in serviceability, ES is designed to be robust and have a long product life. This contributes to tools that will last over

time and due to that, less scrap produced by used tools.

SERVICE INSTRUCTIONS

Spare parts and Service Instructions are provided for the customer.

PROHIBITED AND RESTRICTED LISTS

Compliance with Atlas Copco Prohibited and Restricted lists.
- ROHS II directive (2011/65/EU)
- REACH

ERGONOMIC



Reduce work related costs due to operator fatigue and injuries. Provide an improved environment with TurboTight, Superior operator feedback (HMI) and Atlas Copco ergonomic tool design.

PRODUCTIVE



Reduce overall hours per production unit. Optimize uptime and become lean with TurboTight, Tensor ES motor and Atlas Copco Smart software upgrade.

USER FRIENDLY



Integrate your production equipment and make it operator friendly with an intuitive user experience, web configuration, Unique operator guidance and the efficient IAM concept.



MODULAR DESIGN

No adhesive or solder joints are used between ES modules to make disassembly easy. Screw joints and modular design ensure easy access to all modules.

RECYCLING INFORMATION

Information regarding dismantling and recycling is available in the Product Information. -WEE

TRIPLE CERTIFICATION

Atlas Copco Industrial Technique and Assembly Solutions are certified against ISO14001, ISO9001 and OHSAS18001.

ENERGY EFFICIENT TIGHTENING

Efficiency increased due to improved motor design and reduced energy consumption by 10% with Turbo Tight.



THE COMPONENTS OF QUALITY TIGHTENING



Increased productivity and less reworks

CASE: LIHU is a manufacturer of compressor housing and turbocharging equipment, located in Wuxi City, China. With 600 units produced every day and 3 tightenings per unit, LIHU wanted to increase productivity and required controller display and a solution to store their tightening results. In production LIHU also had an issue with clamp relaxation.



- A** High definition color screen showing tightening results and operator instructions.
 - B** Easy to use keypad guides the user through the functionality. Home and Results View button are only one click away.
 - C** IP 54 prepared by adding one optional accessory. Sealed system to keep oil, dust and water away.
 - D** Cooling vents for heat disposal will keep your Power Focus cool even during the toughest working conditions.
 - E** Fully configurable inputs and outputs for simple PLC integration or remote start.
- Stacklight, Operator Panel and Socket Selector I/O bus connection for error proofing.
- One high speed USB port for external devices, such as printers and scanners for selecting Psets Ethernet port for remote connection.
- One high speed USB for quick software upgrade or to download data locally. One DHCP Ethernet port for browsing into the controller to configure.
- F** Transducer with accuracy of 7,5% over six sigma.
 - G** LED signals for visual feedback.
 - H** Lever or Push Start for maximum comfort.
 - I** Precision cast aluminum housing combines rigidity with excellent heat dissipation.
 - J** Durable tensor ES cable.
 - K** Effective and reliable motors. Aluminum bearing housings for light weight, strength and excellent heat dissipation, resulting in higher productivity.
 - L** Intelligent Application Module (IAM) for software, results, configuration and events.
 - M** Plastic handle with ergonomic and balanced design.
 - N** Rubberized handle provides good ergonomics and high level of operator comfort.

SOLUTION: LIHU invested in 4 x PF600 with Tensor ES: ETD ES61-30-10-T25, IAM Station Control and Service package: Calibration & Repair. Controller display and LEDs on tool showing tightening results, decreased operator dependence.

VALUE: The relaxation issue was minimized and almost eliminated rework to 0-6 units/day, and they managed to reduce cycle time and increase productivity with 8%.

“Flexibility using one tool makes it easy to operate. Low noise and vibration level, is the greatest benefit.”

-LIHU operator

TURBOTIGHT®



TurboTight® is a revolutionary tightening strategy.

For a truly unique operator experience TurboTight® lets the tool absorb the reaction force and significantly improves ergonomics for the operator. Shorten cycle times and at the same time improving flexibility. And if you're doing 200 tightenings a day that makes the world of a difference.



High speed
tightening with
ensured quality
and ergonomics

CASE: Skyworth Appliance is a manufacturer of washing machines in Nanjingsu, China. They needed a high tightening speed as cycle time was low. And required high torque accuracy in quality critical joints and assure joints to be tightened to specification. And in addition, they were asking for a tightening strategy that increased operator satisfaction.



REDUCED CYCLE TIMES

TurboTight® optimizes the tightening speed to achieve the fastest possible tightening that still ensures reliable accuracy.

- Possibility to remove bottlenecks
- Possibility to rebalance assembly lines due to increased cycle rate



REDUCED REACTION FORCE

With optimized tightening speed, the torque builds up faster, reducing the amount of force transmitted to the operator's hand.

- Reduced operator fatigue and thus reduced risk of injury
- Improved operator comfort during tightening



EASY SET-UP

TurboTight® is designed to be extremely easy to set up. In most cases, you just need to set the target torque and you're ready to go.

- Time savings during set-up
- Less time and money spent on training

SOLUTION: Skyworth invested in four PF600 with a Tensor ES ETV ES61-25-10 and 3 Tensor ES ETV ES61-70-13. Quality was increased with an optimised tightening process and operator satisfaction was increased substantially thanks to ETV ES61-70 with TurboTight managing high torque value for pulley application.

VALUE: "Low vibration, low noise and operator guidance is above expectations"

- Skyworth operator



Reduced assembly time – improved operator guidance

CASE: Alco Controls Spol. S R.O. (Emerson Climate Technologies Europe) is a manufacturer of expansion valves for refrigerators and air conditioning situated in Kolin, Czech republic. They wanted to replace multiple air tools and reduce assembly time. But foremost they needed to reduce operator dependence. They wanted an easy to use system, ability to store data and an easy way to make configurations.

SMART UPGRADE AND CONFIGURATION

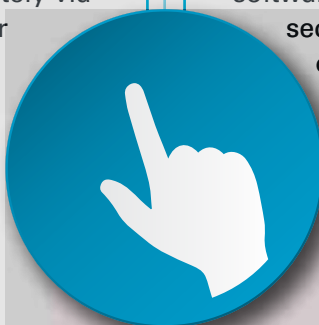
The most user friendly system you can find. Setting up and using an electric system has never been easier than with the teamwork of the Power Focus 600 and Tensor ES. Intuitive and powerful.

Web HMI

With an embedded HMI, the Power Focus 600 can be accessed remotely via a web browser - without need for additional software. Reduce set-up and configuration time and training requirements.

Smart Software Upgrade

Faster and safer upgrades with dual software areas. Simply load a new second version to the IAM via USB or Ethernet PC and activate it. With the previous version accessible.



SOLUTION: Investing in 2 PF600 with Tensor ES: ETD ES61-18-10 and 2 Reaction arms SML T-50 they received a tightening system, easy to use and to install. Flexibility was increased where 1 PF600/ES replaced several air tools. Operator dependence was decreased thanks to operator guidance through visible LEDs on tool and controller display.

VALUE: Reduced assembly time - increased productivity from 50 units per day to 90. PF600 provided them with an easy to use system with ability to store data. They do not need any external softwares to make configurations and it has never been easier to make software upgrades due to the double software areas. Customer is very satisfied with the solution.

+80%

Productivity increase

IAM CONCEPT



Intelligent Application Module (IAM)

IAM lets you carry all important information with you: Software, results, configurations and events. A future proof, portable module – easy to upgrade and with a rapid back-up function. Intelligence in the palm of your hand.



Improved accuracy – eliminated rework

CASE: BRP in Querétaro, Mexico is a manufacturer of recreational products and engines. They are in a long time partnership with Atlas Copco and had issues with their LTV tools overheating due to the large number of screws that needed tightening. They needed to reduce rework and ensure tightening safety critical joints to specification.

TOTAL SOLUTION



Balancers and torque arms

Improve ergonomics and raise productivity. Balancers remove the weight of the tool and reduces the stress levels, providing an ergonomic working solution for the operator. Atlas Copco torque arms are labor-saving extensions of Atlas Copco hand-held tools that ensure accurate tightening, and raise individual productivity in your plant. Use the torque arms and balancers for improved ergonomics and increased productivity.

Error proofing accessories

Error-proofing stations reduce cost and ensure quality. Socket selectors and bit selectors minimize the risk of errors relating to product diversity and assembly process by automatically selecting correct torque according to the socket / bit selected.

Higher quality can be achieved by giving audio and/or visual feedback about the assembly process to the operators. Time and costs can be saved by reducing reworking and avoiding faulty products leaving the production line. For feedback use Atlas Copco Stacklights.

For the full range of accessories – Please see tool accessories and quality integrated fastening in the main catalogue.



Service

Start-up service package such as EasyStart and ResultScan in combination with ToolCover tool maintenance agreements will optimize your assembly. For more information please contact your local service representative.



SOLUTION: BRP invested in three PF600 with Tensor ES: ETV ES61-25-10 and IAM Station Control. Improving quality and increasing productivity with one PF600/ES replacing three LTVs. The previous 15-20 units in need of rework in a day, was reduced to zero. And on top of it all reaction force and noise was reduced, resulting in better ergonomics. With productivity just as high as with pneumatic tools.

VALUE: Average units in need of rework 15-20 units per day – now: 0 units. Replacing previous air tools has an environmental impact.

0

Reworks/day



Power Focus 600/IAM

Model	Ordering No.
Drive unit	
Power Focus 600 with remote start IAM	8436 3700 01
IAM Joint Control	8436 0900 01
IAM Station Control	8436 0900 05



Functionality Overview

Functionality	IAM Joint Control	IAM Station Control
Number of Psets	1	16
Batch sequence	1	16
Lock on reject	x	x
Strategies and options		
Torque control	x	x
Torque control and angle monitoring	x	x
Configurable limits for torque and angle	x	x
Rotate spindle forward/reverse	x	x
TurboTight	-	x
Two Step	x	x
Quick Step	x	x
Three Step	x	x
CW / CCW operation	x	x
Complete re-hit detection	x	x
Self tap	x	x
Process information and service		
Tightening data storage (Torque, Status OK/NOK, NOK reason)	30	1000
Torque-time trace	x	x
Event log	1000	1000
Hardware and connectivity		
Web-browser client programming	x	x
Read and write programming via remote Ethernet	-	x
Tightening data via local USB	x	x
Tightening data via remote Ethernet	-	x
Controller SW upgrade via local USB	x	x
Controller SW upgrade via remote Ethernet	-	x
1D/2D Barcode reader for selection	-	x
Remote start	x	x
Configurable I/O	x	x
Stacklight	x	x
Socket selector	x	x
Operator panel	x	x

Error Proofing Accessories

Model	Ordering No
Accessories	
Stacklight ESL-04 standard	8433 0570 13
Selector 4	8433 0610 04
Selector 8	8433 0610 08
I/O Expander open	8433 0564 39
I/O Expander sealed	8433 0564 45
Operator panel Advanced	8433 0565 00
Operator panel basic remote start	8433 0565 10



Tensor ES Tools

Model	Sq. drive in.	Torque Range		Speed r/min	Weight		Length mm	CS distance mm	Spline/ Mounting	Ordering No.
		Nm	ft lb		kg	lb				
Angle Models										
ETV ES21-04-06	1/4	16.5-4.5	1.2-3.3	1909	0.85	1.9	284	9.5	–	8436 0120 04
ETV ES21-07-06	1/4	2.8-7	2.1-5.2	1147	0.85	1.9	284	9.5	–	8436 0120 07
ETV ES21-12-06	1/4	4.8-12	3.5-8.9	718	0.95	2.1	304	11	–	8436 0120 12
ETV ES21-20-10	3/8	8-20	5.9-14.8	430	1.05	2.3	303	14	–	8436 0120 20
ETV ES61-25-10	3/8	10-25	7.4-18.4	1378	1.8	4.0	419	14	–	8436 0160 25
ETV ES61-30-10	3/8	12-30	8.9-22.1	1160	1.8	4.0	421	15.5	–	8436 0160 30
ETV ES61-40-10	3/8	16-40	11.8-29.5	1153	1.9	4.2	441	18	–	8436 0160 40
ETV ES61-50-10	3/8	20-50	14.8-36.9	692	1.9	4.2	441	18	–	8436 0160 50
ETV ES61-70-13	1/2	28-70	20.7-51.6	439	3.1	6.8	499	20	–	8436 0160 70
ETV ES61-100-13	1/2	40-100	29.5-73.8	370	3.15	6.9	505	22.5	–	8436 0160 10
ETV ES61-150-13	1/2	60-150	44.3-110.6	296	3.2	7.1	541	26	–	8436 0160 15
ETV ES61-180-13	1/2	72-180	53-133	232	3.2	7.1	541	26	–	8436 0160 18
ETV ES61-200-20	3/4	80-200	59-147.5	203	3.4	7.5	543	27	–	8436 0160 20
Angle, quick chuck										
ETV ES21-12-I06-QC	–	4.8-12	3.5-8.9	718	0.95	2.1	304	11	–	8436 0121 12
Angle, ball retainer										
ETV ES61-70-B13	1/2	28-70	20.7-51.6	439	3.1	6.8	499	20	–	8436 0165 70
ETV ES61-100-B13	1/2	40-100	29.5-73.8	370	3.15	6.9	505	22.5	–	8436 0165 10
Straight models										
ETD ES21-02-I06-PS	–	0.8-2	0.6-1.5	4471	0.75	1.7	267	19.5	–	8436 0220 02
ETD ES21-04-I06-PS	–	1.6-4.5	1.2-3.3	1909	0.8	1.8	267	19.5	–	8436 0220 04
ETD ES21-07-I06-PS	–	2.8-7	2.1-5.2	1147	0.8	1.8	267	19.5	–	8436 0220 07
ETD ES21-12-I06-PS	–	4.8-12	3.5-8.9	745	0.8	1.8	267	19.5	–	8436 0220 12
ETD ES61-18-10	3/8	7.2-18	5.3-13.3	2129	1.7	3.75	418	23	-/1	8436 0265 18
ETD ES61-18-10-T25	3/8	7.2-18	5.3-13.3	2129	1.85	4.1	456	23	2/2	8436 0260 18
ETD ES61-25-10	3/8	12-30	8.9-22.1	1793	1.7	3.8	418	23	-/1	8436 0265 25
ETD ES61-25-10-T25	3/8	10-25	7.4-18.4	1793	1.85	4.1	456	23	2/2	8436 0260 25
ETD ES61-30-10	3/8	12-30	8.9-22.1	1077	1.7	3.8	418	23	-/1	8436 0265 30
ETD ES61-30-10-T25	3/8	12-30	8.9-22.1	1077	1.85	4.1	456	23	2/2	8436 0260 30
ETD ES61-50-13	1/2	20-50	14.8-36.9	679	2.95	6.5	493	29	2/2	8436 0265 50
ETD ES61-50-13-T25	1/2	20-50	14.8-36.9	679	3.05	6.7	521	29	3/5	8436 0260 50
ETD ES61-70-13	1/2	28-70	20.7-51.6	608	2.95	6.5	493	29	2/2	8436 0265 70
ETD ES61-70-13-T25	1/2	28-70	20.7-51.6	608	3.1	6.8	521	29	3/5	8436 0260 70
ETD ES61-90-13	1/2	36-90	26.6-66.4	467	2.95	6.5	493	29	2/2	8436 0265 90
ETD ES61-90-13-T25	1/2	36-90	26.6-66.4	467	3.1	6.8	521	29	3/5	8436 0260 90
ETD ES61-120-13	1/2	48-120	35.4-88.5	365	2.95	6.5	493	29	2/2	8436 0265 12
ETD ES61-120-13-T25	1/2	48-120	35.4-88.5	365	3.1	6.8	521	29	3/5	8436 0260 12
Straight models with lever start										
ETD ES21-02-I06	–	0.8-2	0.6-1.5	4471	0.78	1.76	267	19.5	–	8436 0221 02
ETD ES21-04-I06	–	1.6-4.5	1.2-3.3	1909	0.83	1.86	267	19.5	–	8436 0221 04
ETD ES21-07-I06	–	2.8-7	2.1-5.2	1147	0.83	1.86	267	19.5	–	8436 0221 07
ETD ES21-12-I06	–	4.8-12	3.5-8.9	745	0.83	1.86	267	19.5	–	8436 0221 12
Fixture models										
ETF ES21-04-I06-T25	–	1.6-4.5	1.2-3.3	1909	0.96	2.1	338	22.5	– ^a	8436 0224 04
ETF ES21-07-I06-T25	–	2.8-7	2.1-5.2	1147	0.96	2.1	338	22.5	– ^a	8436 0224 07
ETF ES21-12-I06-T25	–	4.8-12	3.5-8.9	745	0.96	2.1	338	22.5	– ^a	8436 0224 12
Pistol grip models										
ETP ES21-02-I06-PS	–	0.8-2	0.6-1.5	4471	0.85	1.87	225	19.5	–	8436 0320 02
ETP ES21-04-I06-PS	–	1.6-4.5	1.2-3.3	1909	0.85	1.87	225	19.5	–	8436 0320 04
ETP ES21-07-I06-PS	–	2.8-7	2.1-5.2	1147	0.85	1.87	225	19.5	–	8436 0320 07
ETP ES21-12-I06-PS	–	4.8-12	3.5-8.9	745	0.85	1.87	225	19.5	–	8436 0320 12

^a Mounting bracket fixed.

Cables

Model	Ordering No.	Model	Ordering No.	Model	Ordering No.
Round cables for ES21 tools		Flat cables for ES61 tools		Extension cables for all tools	
2 m cable	4220 4204 02	3 m cable	4220 4339 03	3 m cable	4220 4393 03
3 m cable	4220 4204 03	5 m cable	4220 4339 05	5 m cable	4220 4393 05
5 m cable	4220 4204 05	7 m cable	4220 4339 07	10 m cable	4220 4393 10
7 m cable	4220 4204 07	10 m cable	4220 4339 10	15 m cable	4220 4393 15
10 m cable	4220 4204 10	15 m cable	4220 4339 15	25 m cable	4220 4393 25
15 m cable	4220 4204 15				

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