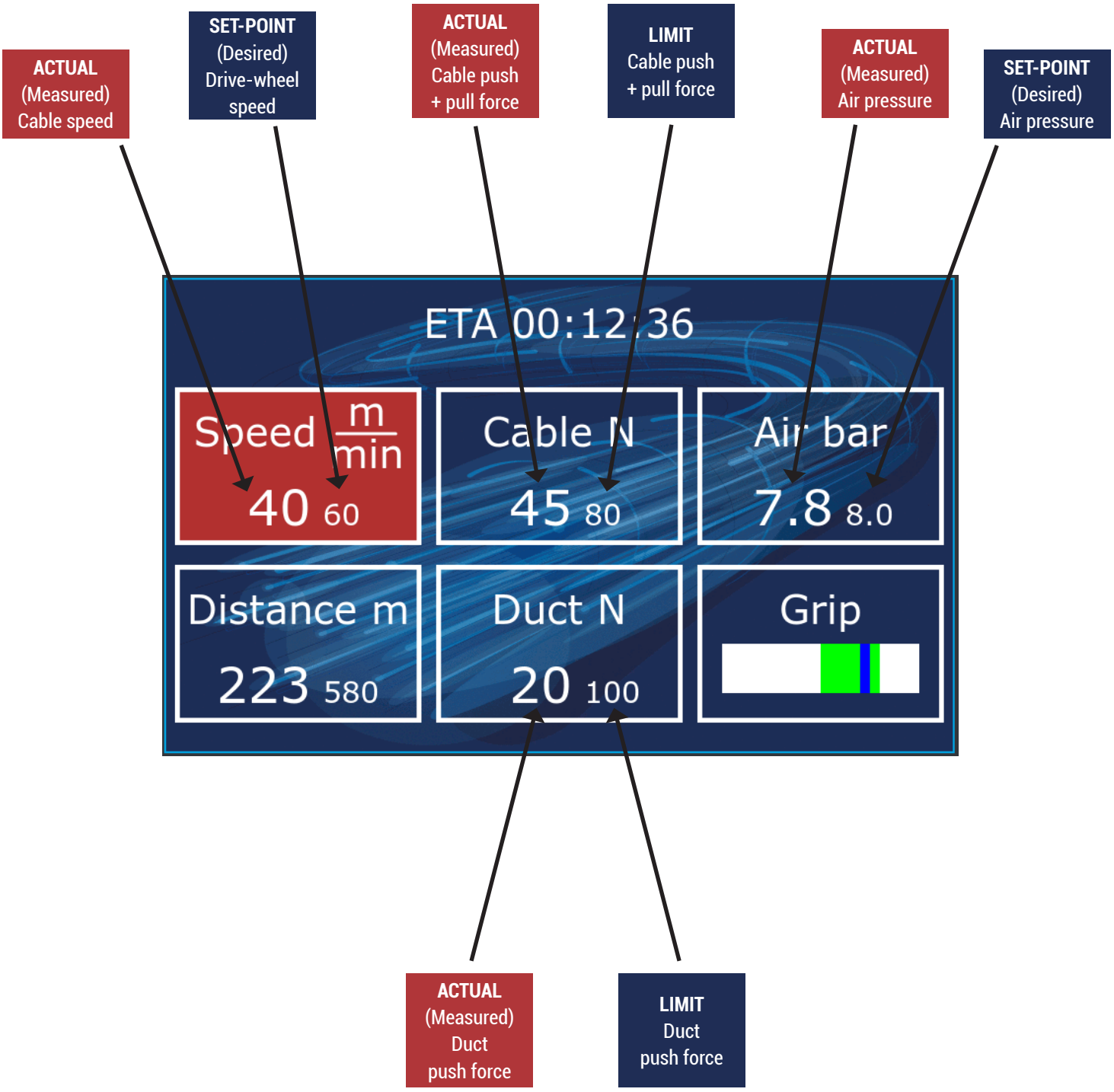
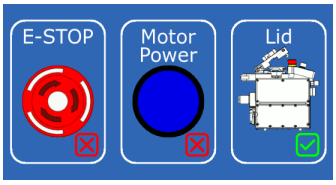
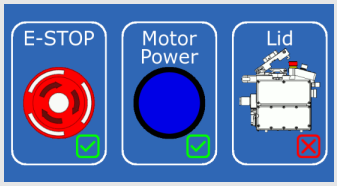
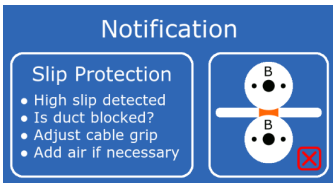
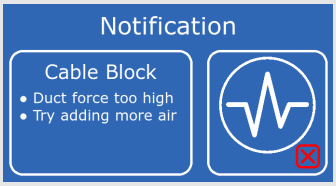
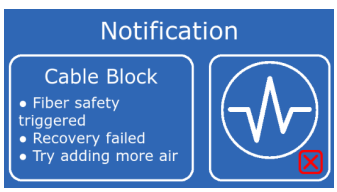
FEATURES
MICROFLOW SMART & SMART+



FEATURE	DESCRIPTION
Cable Force [N] 	Cable Force is only related to the motor. It is divided into 2 components: • Pull Force: force required to pull the cable from the drum and to keep it rotating. • Push Force: force that the drive wheels push the cable into the duct with.
Duct Force [N] 	Duct Force is a force measured dircetly on the duct via load cell. A high duct force indicates that it is difficult for the motor to push the cable into the duct. Rule of Thumb - Duct Force is affected by 2 things: • Increasing Cable Push Force increases Duct Force. • Increasing Air Pressure decreases Duct Force.
Speed [m/min] 	Speed has 3 components: • Drive-Wheel Speed set-point: User defines what speed he wants drive wheels to rotate. • Drive-Wheel Speed actual: Actual speed that wheels rotate with [HIDDEN!]. • Cable Speed actual: Measured cable speed. It is Cable Grip % x Drive-Wheel Speed actual.
Automatic Speed & Cable Force Regulation	Machine motor uses one algorithm that regulates Drive-Wheel Speed and Cable Force "together". Essentially, it increases Cable Force to increase Drive-Wheel Speed.

SAFETY FEATURE/NOTIFICATION	DESCRIPTION
Emergency STOP 	• Trigger: User presses the emergency button. • Effect: Cuts power to the motor. Closes air valve. • Use case example: finger gets stuck between drive-wheels.
Lid Sensor 	• Trigger: Checks if the MicroFlow lid is opened. • Effect: Closes air valve. Stops the motor. • Use case example: lid is not closed correctly. Adding air pushes the lid open.
Slip Detector 	• Trigger: Speed set-point is > 10 m/min. Delay of 10 s after pressing START. Slip is > 95 %. • Effect: Closes air valve. Stops the motor. • Use case example: Cable drum is blocked. Cable is standing still and slipping between drive-wheels.
Duct Force Detector 	• Trigger: Duct push force actual is bigger than the limit. • Effect: Closes air valve. Stops the motor. • Use case example: Duct is blocked or installation is difficult. Try increasing air pressure.
Buckle Detector **(User decides Effect in SETTINGS menu)** 	• Trigger: Buckle detector "sees" that cable is bent inside adapter plates. • Effect #1 - Recovery: Stops the motor. Reverses the cable. Re-starts the motor. Can happen up to 3 times in a short period. If 3rd attempt fails, closes air valve and stops the motor. • Effect #2 - Stop: Closes air valve and stops the motor. • Effect #3 - Ignore: Nothing happens. Continues the job. • Use case example: Motor pushes a small cable too hard. Try increasing air pressure.