The new Series 45 Pressure Compensating/Load Sensing with Electronic Torque Limiting control (PC/LS with ETL), offers the next generation in system performance, efficiency, and innovation. Specifically designed with Tier 4 engines in mind this newly-developed proprietary system allows operators to maximize the total performance potential of their machine.

The Series 45 Electronic Torque Limiting control is designed to be fitted into existing pressure compensated/load sensing or mechanical torque control (MTC) systems. ETL unlocks total system performance potential by allowing infinite adjustment of torque limit settings through the electronic proportional control. PLUS+1® Compliant, available with GUIDE programmable software and precompiled electronic controls, this system solution can be quickly and easily implemented into current or new applications.

A flexible, modular product line allows for either the standalone pump to be purchased, or the entire system. Full system integration can be achieved quickly and easily with the Danfoss pre-programmed controllers and GUIDE software blocks. Ready to operate hardware and software significantly reduces machine development and testing time, keeping time to market at a minimum by quickly fitting the system to your specific needs.

**Features**

**Pressure compensator/load sensing pump with electronic torque limiting control (PC/LS with ETL)**
- Available in 12/24 volt configurations
- Normally closed control (NC), removal of signal to control or angle sensor defaults system to regular PC/LS functionality, allows for maximum uptime
- Similar hardware configuration as current electric controls
- Can be easily implemented into PC/LS systems

**Angle sensor**
- Measures real time swashplate angle (displacement) of the pump with high resolution
- Proven hardware with no interference parts
- Redundant (dual) integrated sensors
  - Improved measurement accuracy
  - Easy sensor fault detection
- PLUS+1® compliance block
  - Easy calibration of sensor and diagnostics
- Also available with other common control configurations (PC, PC/LS, RP, ON/OFF)
- IP67 and IP69K Rating with a 4 pin DEUTSCH connector
- Same package size as current electrical controls

Comprehensive technical literature is online at www.danfoss.com
Optional features

- GUIDE Programmable Electronic Torque Limiting Software
  - Optimized ETL software package for plug & perform functionality
  - Available in the work function control library
  - Easy to program software blocks with GUIDE, ideal for adding to existing GUIDE blocks
  - Simple for integration of user inputs, outputs and additional sensors
  - Incorporates Danfoss dual path propel expertise
  - Available for use with other PLUS+1® applications.

Preprogrammed MC12 electronic controller

- Easy to follow service screens for programming
- 12 Pin connector can be added to current machine
- Easy tuning/ calibrations with CANBus integration for plug and perform operation
- Free downloadable and easy to follow simple service tool allows for fast prototyping and improved time to production

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Unit</th>
<th>Frame J</th>
<th>Frame F</th>
<th>Frame E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous input speed</td>
<td>min⁻¹ (rpm)</td>
<td>2800</td>
<td>2700</td>
<td>2600</td>
</tr>
<tr>
<td>Weight*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axial</td>
<td>kg [lb]</td>
<td>23.1 [51.0]</td>
<td>29.5 [65.0]</td>
<td>52.0 [115.0]</td>
</tr>
<tr>
<td>Radial</td>
<td></td>
<td>27.3 [60.2]</td>
<td>32.6 [71.9]</td>
<td>26.0 [123.3]</td>
</tr>
</tbody>
</table>

*Weight values based on CAD geometry without auxiliary flange and PC/LS control
Frame E

Outlet port

36 [1.42]

36 [1.42]

(120) (4.39)
approximate wire length
131.5 [5.18]

126.9 [5]

59.4 [2.34]