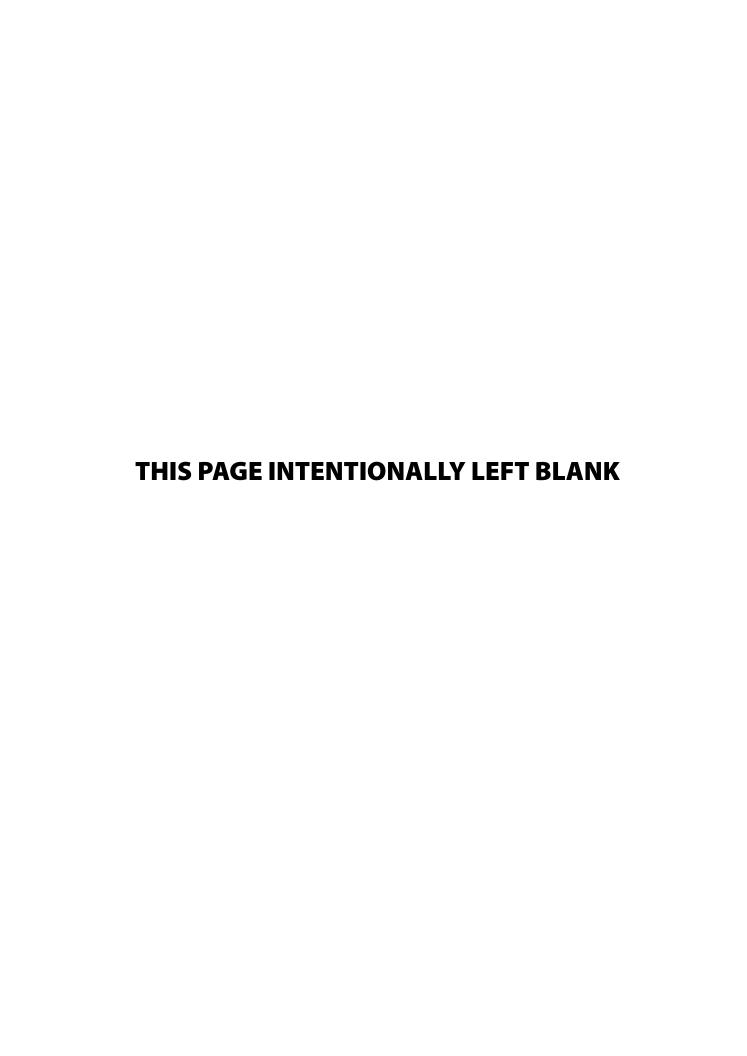
ENGINEERING



Spare Parts Selection Guide - Revision F.3

# Danfoss Turbocor® **TTS,TGS**, **TTH, & TGH** Series Centrifugal Compressors







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#### Introduction

#### Organization

The TTS, TGS, TTH, and TGH series spare parts manual is organized in a top down manner. Sections include External Components, Top Side, Discharge Side, and Service Side. Spare part kits are differentiated using compressor major revision and part number, which can be found on your compressor's name plate. Refer to the product nomenclature below to determine which major revision your compressor falls under. Knowing the major revision, part number, voltage, and electronics type (SIE/FIE) of your compressor are essential to using this document effectively.

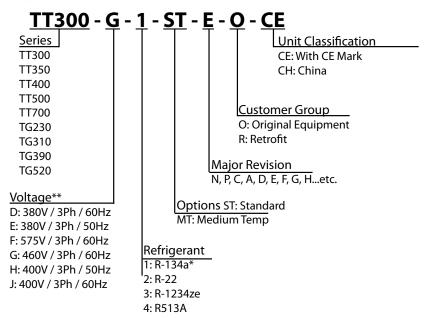
#### **PDF Navigation**

This document contains PDF hyperlinks for easy navigation. Clicking on items in the table of contents, or any blue hyperlink text will take you to the page it references.

#### Nomenclature

As of May 6, 2019, the product nomenclature changed. The following two illustrations provide examples of the two different formats. Additionally, the "Series" indicators have an additional character in order to differentiate the standard compressors from high-lift compressors. Unless the compressor is a high-lift design, an "S" will be added (e.g., TTS350). A high lift compressor will have an "H" in the Series designation (e.g., TTH375).

#### TT and TG Product Nomenclature Prior to May 6, 2019.

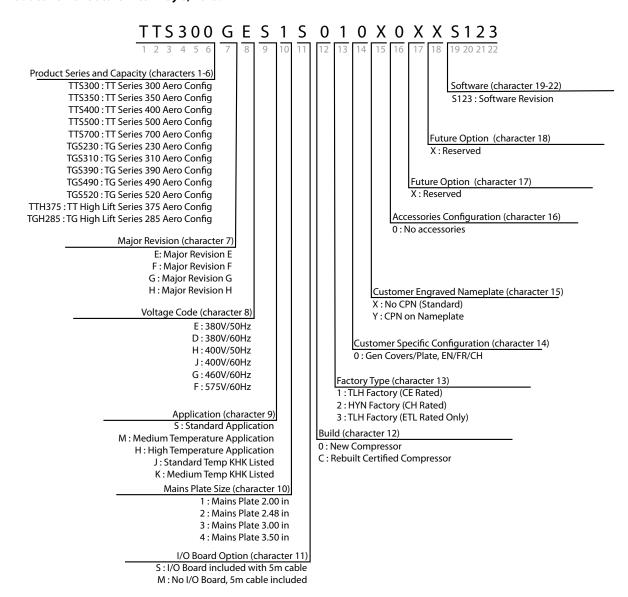


<sup>\*</sup> R1234ze available in the software settings on Major Rev "F" and later compressors

<sup>\*\*</sup>Some older model compressors have a nomenclature which has a predetermined amp limit such as "G4, G5, ...etc." This guide is still applicable as the amp limit is only related to a software setting



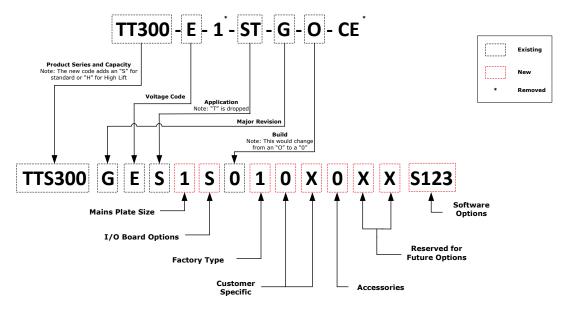
#### TT and TG Product Nomenclature After May 6, 2019.





#### Conversion From Old Code to New Code

#### **Conversion From Old Code to New Code**



#### **Type Code Definition**

Product Series and Capacity TTS300: TT Series 300 Aero Config TTS350: TT Series 350 Aero Config TTS400: TT Series 400 Aero Config TTS5200: TT Series 500 Aero Config TTS700: TT Series 700 Aero Config
TTS350: TT Series 350 Aero Config
TTS400: TT Series 400 Aero Config
TTS500: TT Series 500 Aero Config
TTS700: TT Series 700 Aero Config
TGS230: TG Series 230 Aero Config
TGS310: TG Series 310 Aero Config
TGS390: TG Series 390 Aero Config
TGS490: TG Series 490 Aero Config
TGS520: TG Series 520 Aero Config
TTH375: TT High Lift Series 375 Aero
Config

TGH285: TG High Lift Series 285 Aero

Config

<u>Major Revision</u> E: Major Revision E F: Major Revision F G: Major Revision G

Voltage Code E: 380V/50Hz D: 380V/60Hz

H: 400V/50Hz J: 400V/60Hz G: 460V/60Hz F: 575V/60Hz

Application J: Standard Temp KHK Listed K: Medium Temp KHK Listed

Application
S: Standard Application
M: Medium Temperature

Mains Plate Size
1: Mains Plate 2.00"
2: Mains Plate 2.48"
3: Mains Plate 3.00" 4: Mains Plate 3.50

I/O Board Option S: I/O Board included with 5m cable M: No I/O Board, 5m cable Included

Build

0: New Compressor C: Rebuilt Certified Compressor

Factory Type
1: TLH Factory (CE Rated)
2: HYN Factory (CH Rated)
3: TLH Factory (NC Rated)

Customer Specific Configuration 0: Gen Covers/Plate, EN/FR/CH

Customer Engraved Nameplate X: No CPN (Standard) Y: CPN on Nameplate

Accessories Configuration 0: No accessories

Future Option X: Reserved

X: Reserved

<u>Software</u> S123: Software Revision



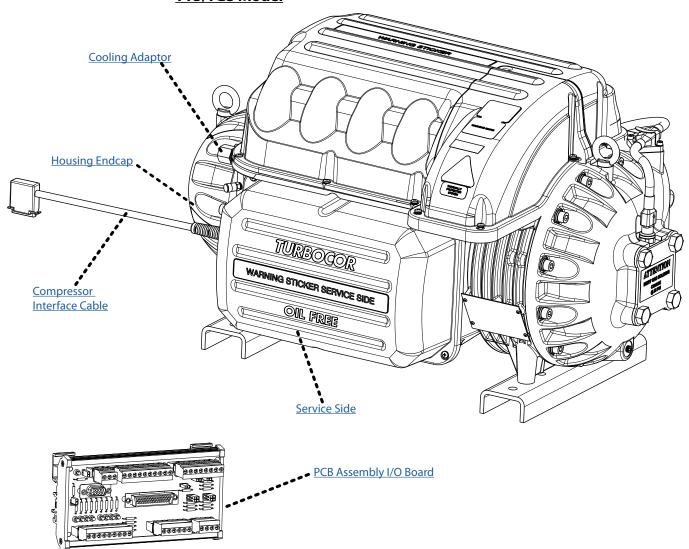
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## **Section 1: External Components**

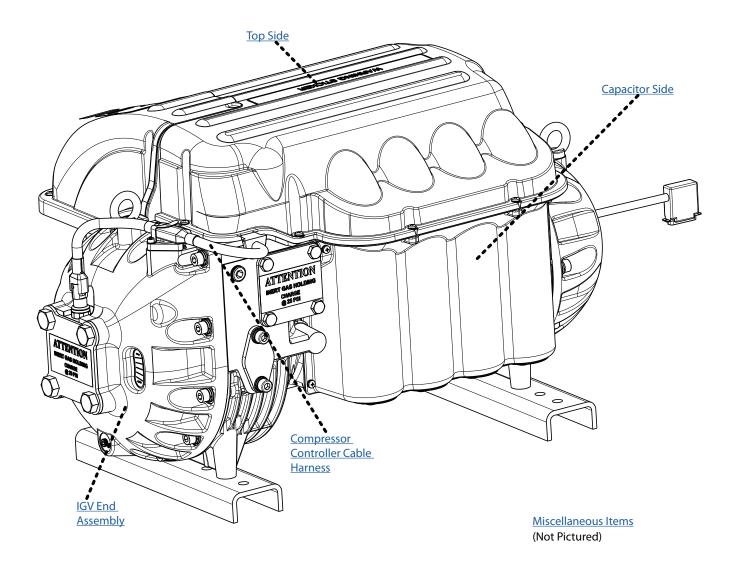
This section details the spare part kits available for components visible on the outside or separate from the compressor.

#### **TTS/TGS Model**



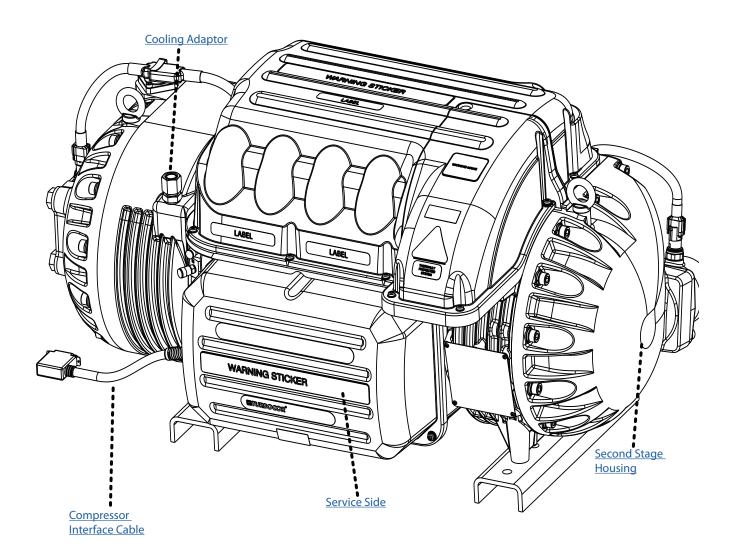


## **TTS/TGS Model**



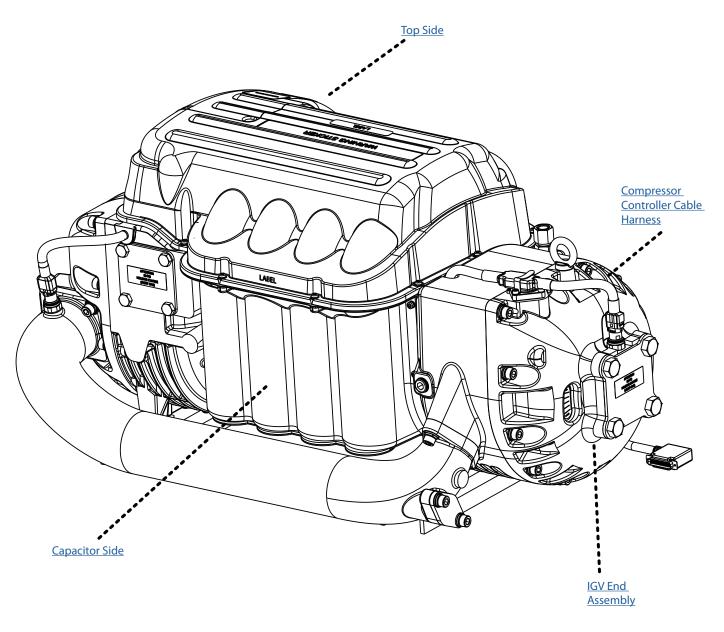


# TTH/TGH Model





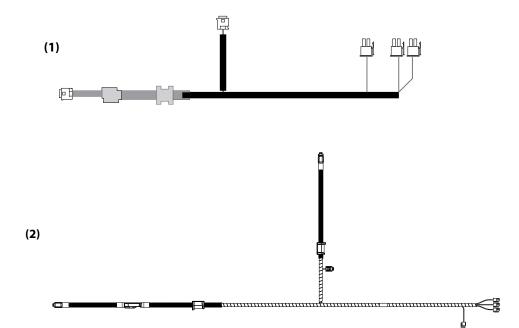
## TTH/TGH Model



Miscellaneous Items (Not Pictured)



# **Compressor Controller Cable Harness**

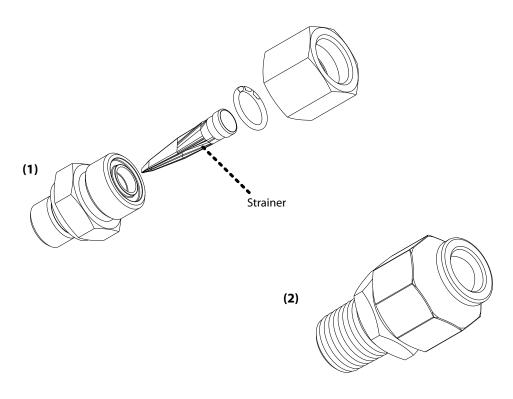


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT - CABLE HARNESS COMPRESSOR CONTROLLER	100322-5	-N, -P, -C, -D, -E, -F, -G, -H	Cable Only	

APPLIES TO: TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(2) KIT - CABLE HARNESS COMPRESSOR CONTROLLER	100322-4	-F, -H	Cable Only	



# **Cooling Adaptor**



APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT – COMPRESSOR COOLING ADAPTOR WITH STRAINER	100169-1	-E, -F, -G, H	Contains O-rings and strainer	
KIT – STRAINER	100186-1	-E, -F, -G, H	Replaces strainer and one O-ring	

APPLIES TO: TTS300					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(2) KIT – COMPRESSOR COOLING FITTING AND STRAINER ASSEMBLY	100215	-N, -P, -C, -D	Can be used with SIE models, do not use if compressor part number ends in "-3", includes strainer and nut		
(1) KIT – COMPRESSOR COOLING ADAPTOR WITH STRAINER	100169-1	-E, -F, -G, H	Also can use on TT300 if compressor part number ends in "-3". Contains O-rings and strainer		
KIT – STRAINER	100186-1	-E, -F, -G, H	Replaces strainer and one O-ring		



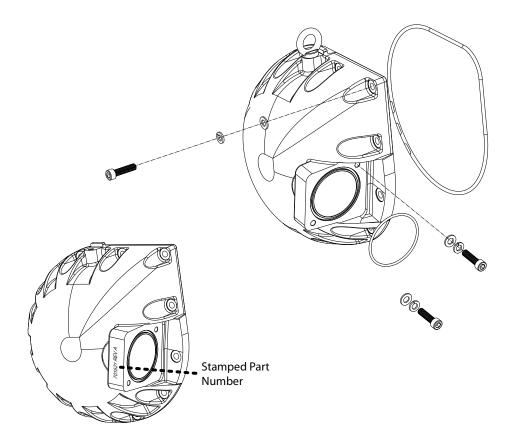
# **Housing End Cap**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - END CAP ASSEMBLY	100324-2	ALL	Contains eyebolt and O-ring	
KIT - O-RING END CAP ASSY	100352	ALL	Replaces Endcap O-ring	



## **Second Stage Housing**

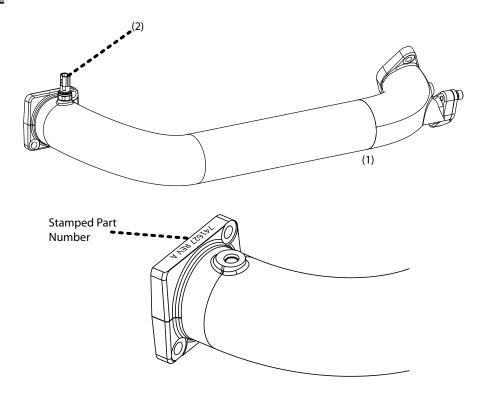


It is important to determine the version of Second Stage Housing that is currently installed on the compressor in order to identify the correct part number. There are two variants of Second Stage Housing and Interstage pipe and they are not interchangeable. Refer to the stamped part number on the Second Stage Housing flange that mates to the Interstage Pipe. When replacing early revision Second Stage Housings, the Interstage Pipe will also need to be replaced.

APPLIES TO: TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
	100706-3		For Second Stage Housing part number 701521, also order kit 100703-3.		
KIT – SECOND STAGE HOUSING		706-3 -F, -H	For Second Stage Housing part number 741630, no other kit is required.		
			Contains eyebolt, O-rings, and mounting hardware		
KIT – O-RINGS SECOND STAGE HOUSING	100706-2	-F, -H	Contains O-rings and fasteners for Second Stage Housing, Interstage Pipe, and Economizer		



#### **Interstage Pipe**



It is important to determine the version of Interstage Pipe that is currently installed on the compressor in order to identify the correct part number. There are two variants of Second Stage Housing and Interstage pipe and they are not interchangeable. Refer to the stamped part number on the Interstage Pipe flange that mates to the Second Stage Housing. When replacing early revision Interstage Pipes, the Second Stage Housing will also need to be replaced.

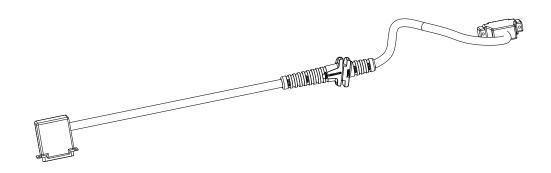
#### NOTE

If the part number on the Interstage Pipe is not visible, verify the Second Stage Housing part number. If the Second Stage Housing is part number, 701521, then kits **100703-3** and **100706-3** need to be purchased. If the Second Stage part number is 741630, then purchase kit **100703-3**.

APPLIES TO: TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
	INTERSTAGE PIPE 100703-3	3-3 -F, -H	For Interstage Pipe part number 741627, also order kit 100706-3.		
(1) KIT – INTERSTAGE PIPE			For Interstage Pipe part number 741629, no other kit is required.		
			Contains P/T Sensor, O-rings, and fasteners		
(2) KIT - SENSOR PRESSURE/TEMPERATURE HIGH SIDE	100037-1	-F, -H	Marked with a red spot and a green spot, contains O-ring		
KIT – INTERSTAGE PIPE O-RINGS and FASTENERS	100703-2	-F, -H	Contains Interstage Pipe and Economizer O-rings and fasteners		



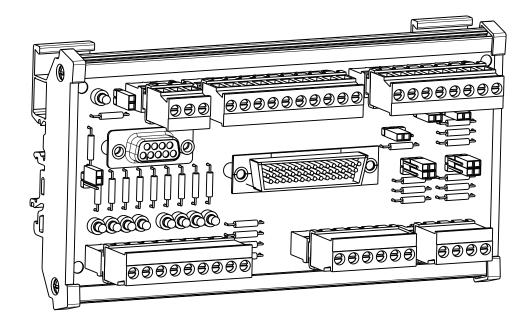
# **Compressor Interface Cable**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - CABLE COMPRESSOR INTERFACE 5M	100058-1	ALL	Cable Only	
KIT - CABLE COMPRESSOR INTERFACE 10M	100058-4	ALL	Cable Only	



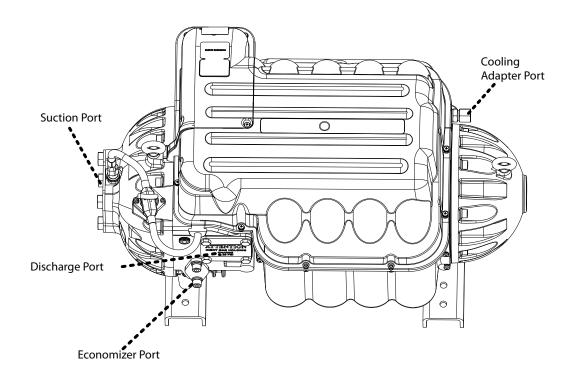
# PCB Assembly I/O Board



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - PCB ASSY COMPRESSOR I/O	100076-1	ALL	PCB Only



# Miscellaneous Items Port O-rings



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT- O-RING COOLING PORTS SUCTION, DISCHARGE, ECONOMIZER, MOTOR COOLING	100329	ALL	Includes O-rings for Cooling Adaptor, Suction, Discharge, and Economizer ports	
KIT- O-RING SUCTION PORT	100555	ALL	Suction Port O-Ring only	



#### **Miscellaneous Items**

## **Dielectric Grease**



APPLIES TO: ALL COMPRESSORS			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
DIELECTRIC GREASE, 1.25 FL OZ	901982	ALL	1.25 fl. oz. tube of Grease Only

# **Refrigerant Stickers**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TTH375				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - REFRIGERANT STICKER 513A	100374	-F, -G, -H	10 stickers	

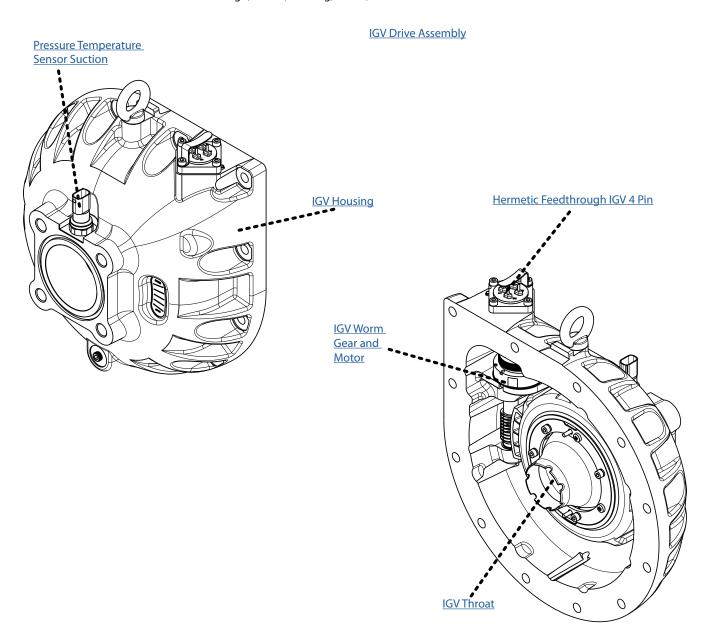


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## **Section 2: IGV End Assembly**

The spare part kits available for the IGV Drive assembly are detailed in this section. The IGV Drive Assembly and O-ring kits detailed on the following page replace the entire IGV assembly, including feedthrough, sensor, housing, throat, and motor.





# **IGV Drive Assembly**

APPLIES TO: TTS300/TGS230			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV - DRIVE ASSEMBLY AND O-RING TT300/ TG230	100050-16	-P, -C, -D, -E, -F, -G, -H	Black IGV throat with thin rim, tall, plug

APPLIES TO: TTS350/TGS310				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV - DRIVE ASSEMBLY AND O-RING TT350/ TG310	100050-15	-A, -E, -F, -H	Blue IGV throat, plug	

APPLIES TO: TTS400/TGS390			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV - DRIVE ASSEMBLY AND O-RING TT400/ TG390	100050-17	-C, -E, -F, -H	Gold IGV throat, plug

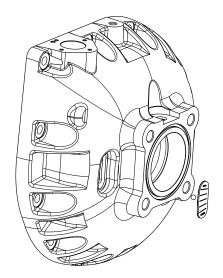
APPLIES TO: TGS490				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV - DRIVE ASSEMBLY AND O-RING TGS490	100050-25	-F, -H	Silver IGV throat, plug	

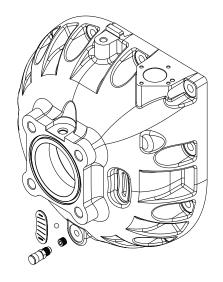
APPLIES TO: TTS500/TTS700/TGS520			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV - DRIVE ASSEMBLY AND O-RING TT700/ TG520	100050-18	-A, -E, -F, -H	Steel IGV throat, plug

APPLIES TO: TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV - DRIVE ASSEMBLY AND O-RING - TTH375/ TGH285	100050-19	-F, -H	Orange IGV throat	



# **IGV** Housing





APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV HOUSING	100223	All	Contains Housing, IGV indicator, plug

APPLIES TO: TTS500/TTS700/TGS520/TGS490			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV HOUSING TT500/TT700/TG520/TGS490	100229	All	Contains Housing, IGV indicator, plug

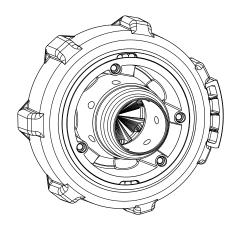
APPLIES TO: TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV HOUSING	100223-5	All	Contains Housing, IGV indicator, O-rings, and fasteners	

#### **ACCESSORIES**

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - O-RING IGV ASSEMBLY	100051-1	ALL	Includes O-rings



# **IGV Throat**



APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV THROAT - TT300/TG230	100227	-P, -C, -D, -E, -F, -G, -H	Do NOT use with R22, contains IGV throat assembly-black, thin rim	

APPLIES TO: TTS350/TGS310			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV THROAT - TT350/TG310	100228	-A, -E, -F, -H	Contains IGV throat assembly-blue

APPLIES TO: TTS400/TGS390				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV THROAT - TT400/TG390	100231	-C, -E, -F, -H	Contains IGV throat assembly-gold	

APPLIES TO: TTS500/TTS700/TGS520				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV THROAT - TT500/TT700/TG520	100232	-A, -E, -F, H	Contains IGV throat assembly-steel	



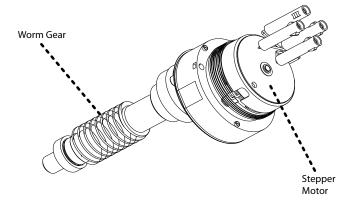
# **IGV Throat (Continued)**

APPLIES TO: TGS490			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV THROAT - TGS490	100261	-F, -H	Contains IGV throat assembly-silver

APPLIES TO: TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV THROAT - TTH375/TGH285	100704	-F, -H	Contains IGV throat assembly- orange, O-rings, and fasteners



## **IGV Worm Gear and Motor**



#### **NOTE**

The Worm Gear Extractor Tool is required for the removal of the IGV Worm Gear. Refer to the Tools/Accessories Table below for the part number.

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - IGV WORM GEAR SHAFT REPAIR	100222	ALL	Contains Worm Gear, Stepper Motor, Bearings, Collars and Clips	
KIT - IGV MOTOR SERVICE	100035-1	ALL	Includes Motor and O-rings	
KIT - O-RING IGV ASSEMBLY	100051-1	ALL	Includes O-rings	

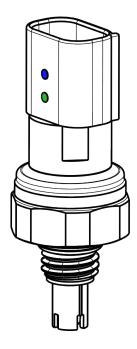
APPLIES TO: TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGV WORM GEAR SHAFT REPAIR	100705	ALL	Contains Worm Gear, Stepper Motor, Bearings, Collars, Clips, O-rings, and fasteners
KIT - IGV MOTOR SERVICE	100035-2	ALL	Includes Stepper Motor, O-rings, and fasteners
KIT - O-RING IGV ASSEMBLY	100051-1	ALL	Includes O-rings

#### TOOLS/ACCESSORIES

APPLIES TO: ALL COMPRESSORS				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - EXTRACTOR TOOL, WORM GEAR	100246	ALL	Worm Gear Extractor tool only	



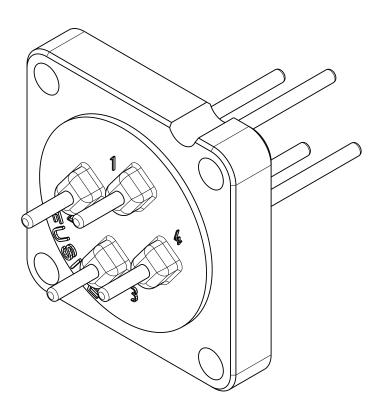
# **Pressure Temperature Sensor Suction**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT – SENSOR PRESSURE/TEMPERATURE LOW SIDE	100036-1	ALL	Marked with a blue spot and a green spot, contains O-ring	



# Hermetic Feedthrough IGV 4 Pin

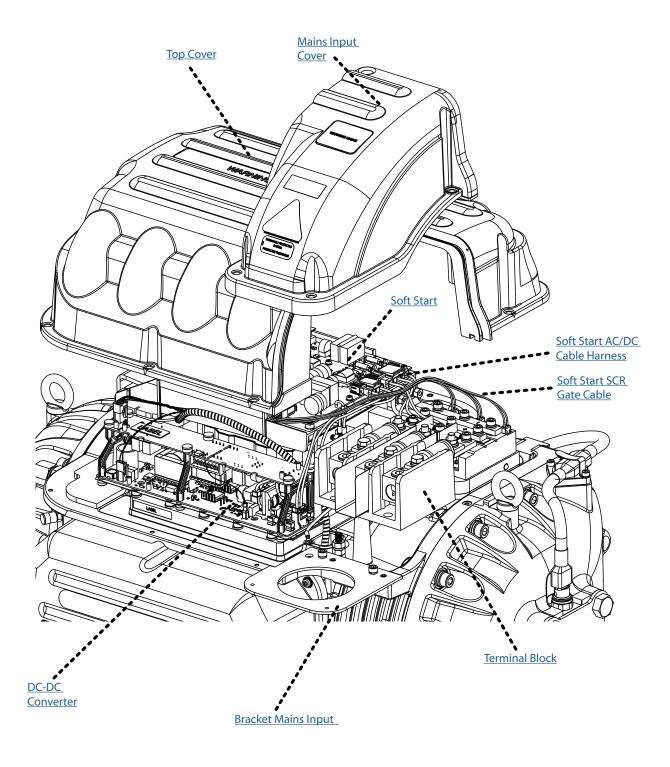


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT- HERMETIC FEEDTHROUGH IGV 4PIN	100321-1	ALL	Includes O-ring, clamp, and fasteners	



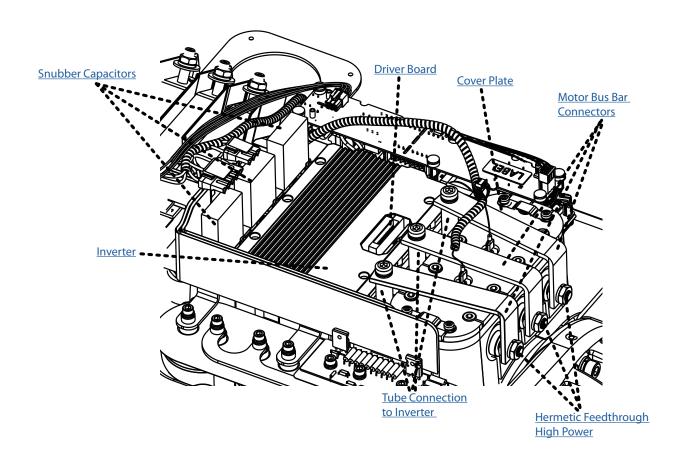
## **Section 3: Top Side**

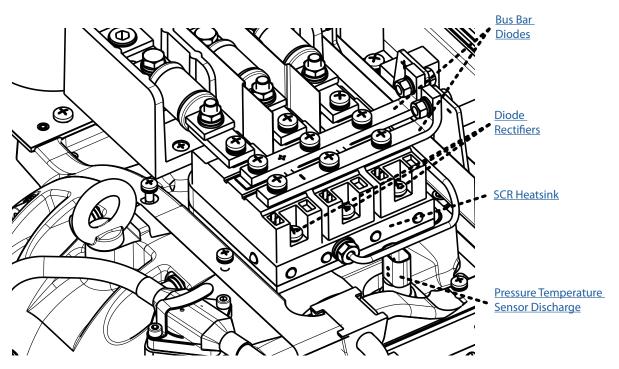
This section details the spare part kits available for components underneath the Top Side and Mains Input covers.





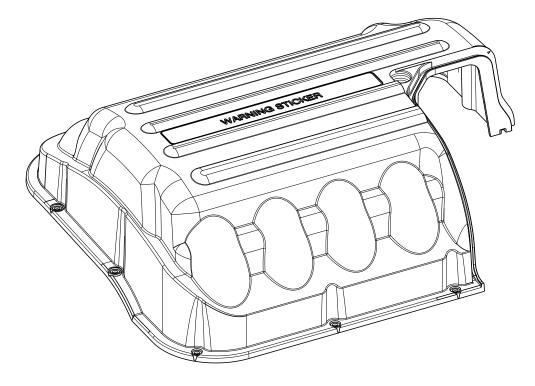
## **Section 3: Top Side (Continued)**







# **Top Cover**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TTH375			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER TOP ASSY (BLACK) EN/FR LABELS	100054-3	ALL	Includes fasteners

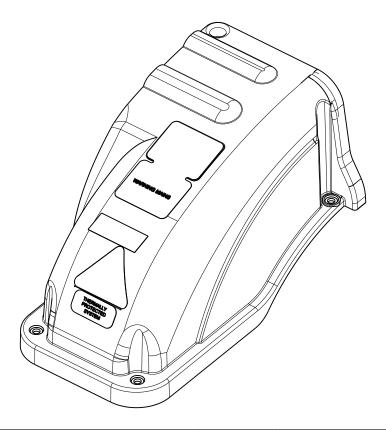
APPLIES TO: TGS230/TGS310/TGS390/TGS490/TGS520/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER TOP ASSY (GREEN)EN/FR LABELS	100054-6	ALL	Includes fasteners

## **ACCESSORIES**

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - COVERS SCREW M5 (P/H STAINLESS STEEL)	100252	ALL	Replaces fasteners for all four covers (24 fasteners)	



# **Mains Input Cover**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TTH375			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER MAINS INPUT ASSY (BLACK) EN/FR LABELS	100056-3	ALL	Includes fasteners

APPLIES TO: TGS230/TGS310/TGS390/TGS490/TGS520/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER MAINS INPUT ASSY (GREEN) EN/FR LABELS	100056-6	ALL	Includes fasteners

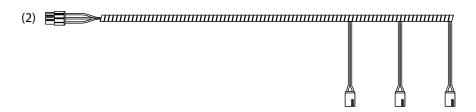
#### **ACCESSORIES**

ĺ	APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
ı	DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
	KIT - COVERS SCREW M5 (P/H STAINLESS STEEL)	100252	ALL	Replaces fasteners for all four covers (24 fasteners)	



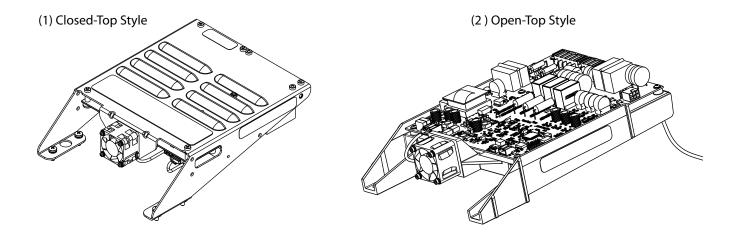
#### **Soft Start SCR Gate Cable**





It is important to determine the Soft Start that is currently installed on the compressor. Pre Rev H compressors may contain a Soft Start that has been upgraded to the Open-Top style. The two different style Soft Starts utilize a different connector, which requires a unique Soft Start SCR Gate Cable.

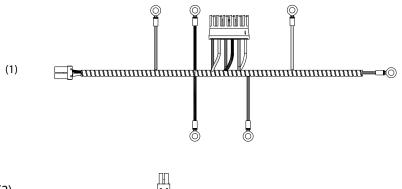
APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT - CABLE HARNESS SOFT START SCR GATE	100059	-N, -P, -C, -D, -E, -F, -G	Closed-Top Soft Starts (1) Includes cable only	
(2) KIT - CABLE HARNESS SOFT START SCR GATE	100059-1	-H	Open-Top Soft Start (2) Includes cable only	

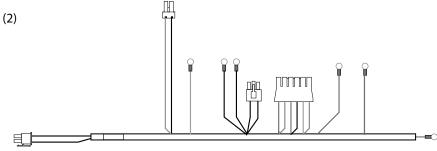


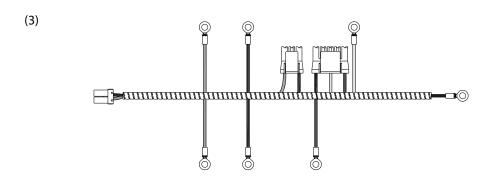
\*The Open-Top style Soft Starts require a different Soft Start SCR Cable.



#### **Cable Harness Soft Start AC/DC**





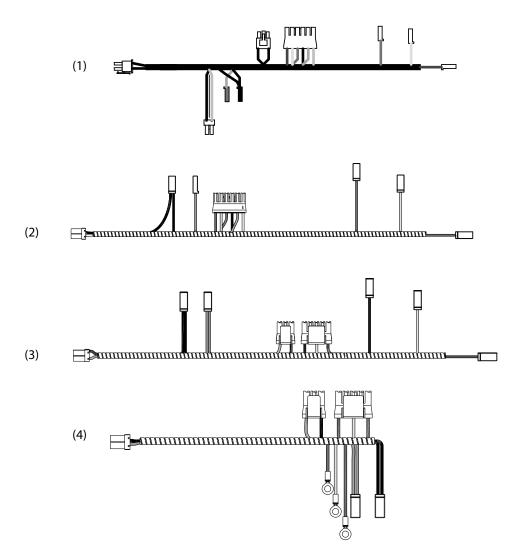


It is important to determine the Soft Start that is currently installed on the compressor, as well as the DC-DC and Bus Bars. Pre Rev H compressors may contain a Soft Start that has been upgraded to the Open-Top style and a DC-DC Converter that has been upgraded to the Open-Frame style. Each of these items will impact the required kit. Refer to the Comment section in the tables below to determine the appropriate kit for the existing compressor. Also, refer to the Soft Start section in this manual if you need assistance to identify the visital difference between the two types of Soft Starts.

APPLIES TO: TTS300*/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1 & 2) KIT-CABLE HARNESS SOFT START AC/DC	100380	-N, -P*, -C, -D, -E, -F, -G	Cable Only (Kits includes two cables in order to accommodate either DC-DC style)	
			Cable Only	
(3) KIT-CABLE HARNESS SOFT START AC/DC	100380-1	-Н	**Rev. G compressors can use this cable if they have the Open Frame DC-DC and the Open-Top Soft Start installed.	



#### **Cable Harness Soft Start AC/DC (Continued)**

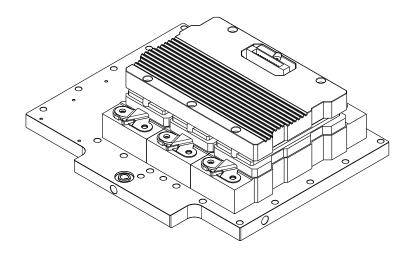


APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1& 2) KIT-CABLE HARNESS SOFT START AC/DC	100381	-P*, -A, -C, -E, -F	Cable Only (Kits includes two cables in order to accommodate either DC-DC style)	
(3) KIT-CABLE HARNESS SOFT START AC/DC	100381-2	-P*, -A, -C, -E, -F	Cable Only Soft Start (open-top style), Open Frame DC-DC, and Curved Bus Bars	
(4) KIT-CABLE HARNESS SOFT START AC/DC	100381-1	-H	Cable Only Soft Start (open-top style), Open- Frame DC-DC, and Straight Bus Bars	

\*Some compressor models – P and earlier manufactured without ASIC soft starts - require replacement of both the cable harness and the <u>soft start board</u>. For more information on these, please contact Danfoss Turbocor Product Support.



#### Inverter



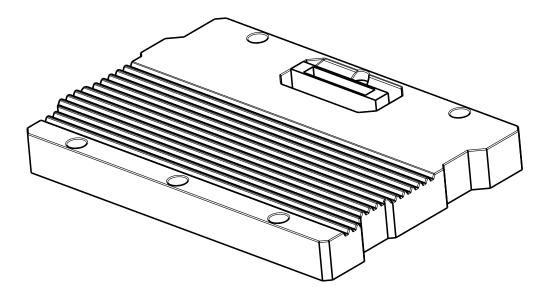
APPLIES TO: TTS300/TGS230			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - INVERTER ASSY 613 KIT – INVERTER ASSY CONVERSION 342 TO 613 SERIES	100521*	-N, -P, -C, -D, -E, -F	Includes motor bus bars, manifold insulator, fasteners, washers, and O-rings
KIT – INVERTER ASSY 613	100043-13*	-G, -H	Includes fasteners, washers and O-rings
KIT- O-RING INVERTER ASSY	100310-2	ALL	Replaces Inverter O-rings and fasteners

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - INVERTER ASSY 613	100043-11	-P, -A, -C, -E, -F, -H	Includes fasteners, washers, and O-rings	
KIT- O-RING INVERTER ASSY	100310-1	ALL	Replaces Inverter O-rings, and fasteners	

\*Refer to Customer Notification (B-CN-079-EN)



#### **Driver Board**



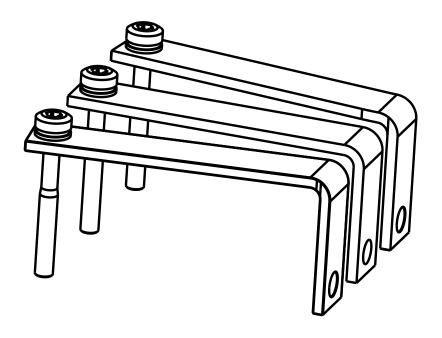
APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - INVERTER CONTROL CARD SKIIP 613 , TT300/ TG230	100518-1*	-G, -H	Includes mounting fasteners and spring pins	

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - IGBT 613 DRIVER BOARD	100518	-P, -A, -C, -E, -F, -H	Includes mounting fasteners and spring pins

\*Refer to Customer Notification (B-CN-079-EN) - This kit is for TTS300/TGS230 Rev. G and later compressors or when Conversion Kit (100521) has already been applied



## **Motor Bus Bar Assembly Connectors**



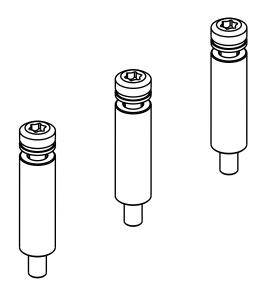
APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - BUS ASSEMBLY CONNECTION MOTOR INVERTER	100313	-N, -P, -C, -D, -E, -F	Includes three bus bars and fasteners	
KIT - BUS ASSEMBLY CONNECTION MOTOR INVERTER	100313-1*	-G, -H	Includes three bus bars and fasteners	

APPLIES TO: TT350/TT400/TT500/TT700/TG310/TG390/TGS490/TG520/TTH375/TGH285				
DESCRIPTION PART NO. MAJOR REV COMMENT				
KIT - BUS ASSEMBLY CONNECTION MOTOR INVERTER	100313-1	-P, -A, -C, -E, -F, -H	Includes three bus bars and fasteners	

\*Refer to Customer Notification (B-CN-079-EN) - This kit is for TTS300/TGS230 Rev. G and later compressors or when Conversion Kit (100521) has already been applied



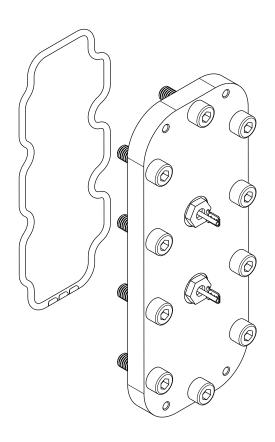
## **Tube Connection to Inverter**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - TUBE CONNECTION TO INVERTER	100311	ALL	Includes three tubes and fasteners



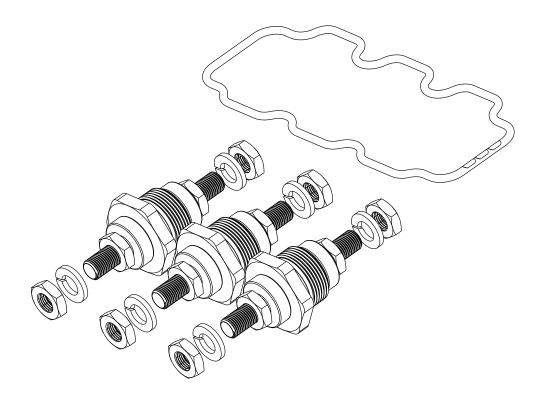
# **Cover Plate Assembly**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER PLATE ASSEMBLY	100314-2	ALL	Includes O-rings and fasteners
KIT- O-RING TOP PLATE ASSY	100315-1	ALL	Molded O-ring Only (shown)



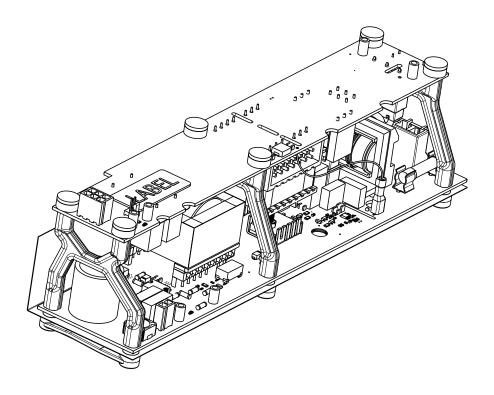
# **Hermetic Feedthrough High Power**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - HERMETIC FEEDTHROUGH HIGH POWER EPDM (Stainless Steel)	100383	ALL	Includes three high power feedthroughs, nuts, washers, O-ring, and fasteners	
KIT- O-RING TOP PLATE ASSY	100315-1	ALL	Custom O-ring Only (shown)	



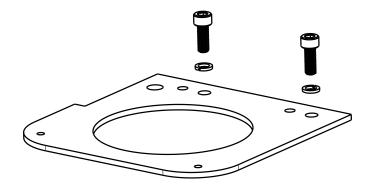
## **DC-DC Converter**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - DC-DC CONVERTER ASSEMBLY	100379	ALL	Includes fasteners	



# **Bracket Mains Input and Grounding Stud**

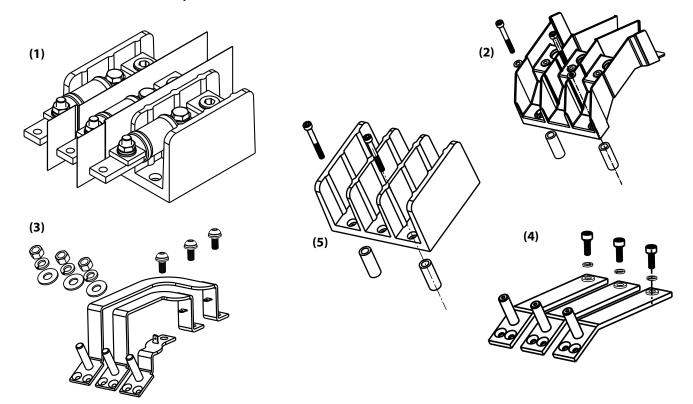


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT – BRACKET MAINS INPUT PLATE 2.0" DIAMETER	100216	ALL	Includes fasteners and washers	
KIT – BRACKET MAINS INPUT PLATE 2.48" DIAMETER	100217	ALL	Includes fasteners and washers	
KIT – BRACKET MAINS INPUT PLATE 3.0" DIAMETER	100218	ALL	Includes fasteners and washers	
KIT – BRACKET MAINS INPUT PLATE 3.5" DIAMETER	100219	ALL	Includes fasteners and washers	
KIT – MAIN INPUT GROUND POST	100519 *	ALL	Includes fasteners and washers	

<sup>\*</sup> Not pictured



# **Terminal Block Assembly**

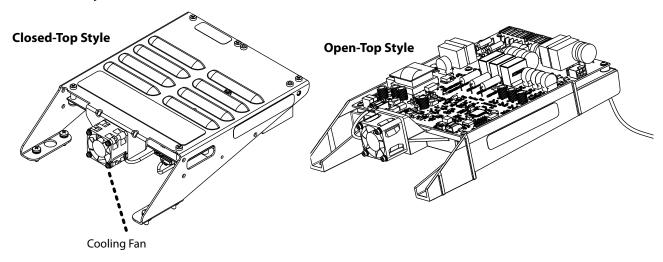


APPLIES TO: TTS300/TGS230					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(1) KIT - TERMINAL BLOCK MAINS AND FUSE ASSY	100048-2	-N, -P, -C, -D, -E, -F ,-G, -H	Replaces Terminal Block assembly, includes fuses, insula- tor, fuse extension, fasteners, and connectors		
KIT – FUSE CLASS T-FAST ACTING A6T 175	100344	-N, -P, -C, -D, -E, -F ,-G, -H	Replaces the three fuses in the terminal block assembly		

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(3) KIT - INPUT MAINS BUS BARS (CURVED)	100416	-A, -C, -E, -F	Includes three Bus Bars and fasteners	
(4) KIT - INPUT MAINS BUS BARS (STRAIGHT)	100416-1	-H	Includes three Bus Bars and fasteners	
(5) KIT - TERMINAL POWER BLOCK ASSY	100048-1	-A, -C, -E, -F	Replaces Terminal Block, fasteners, and spacers	
(2) KIT - TERMINAL POWER BLOCK ASSY	100048-3	-H	Replaces Terminal Block, fasteners, and spacers	



#### **Soft Start Assembly**



It is important to determine the DC-DC that is currently installed on the compressor prior to purchasing a new Soft Start. Please refer to the detail in the Comment column below to determine the appropriate kit or other required cables.

APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - MODULE SOFT START UPGRADE (Conversion to Open-Top Style)	100020-19	-N, -P, -C, -D, -E, -F	Includes Soft Start, DC-DC, Soft Start AC/DC Cable, Soft Start SCR Gate Cable, and fasteners	
	100020-18	-G**,-H	Includes fasteners only	
KIT - MODULE SOFT START			**Rev G compressors with Potted DC-DC require Soft Start Upgrade Kit (100020-19) instead	
(Open-Top Style)		- ,	**Rev G Compressors with Open Frame DC-DC require cables 100380-1 and 100059-1 in addi- tion to this kit	

<sup>\*</sup>Some compressor models –P and earlier manufactured without ASIC Soft Starts require replacement of both cable harnesses with either part number 100380 or 100381 (depending on compressor model) and the Soft Start. For more information on these, please contact Danfoss Turbocor Product Support.



## **Soft Start Assembly (Continued)**

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - MODULE SOFT START UPGRADE (Conversion to Open-Top Style)	100020-20	-P, -A, -C, -E	Includes Soft Start, DC-DC, Soft Start AC/DC Cable, Soft Start SCR Gate Cable, and fasteners	
KIT - MODULE SOFT START (Open-Top Style)	100020-18	-F**, -H	**Rev F compressors with Potted DC-DC require Soft Start Upgrade Kit (100020-20) instead  **Rev F Compressors with Open Frame DC-DC require cables 100381-2 and 100059-1 in addition to this kit	

<sup>\*</sup>Some compressor models –P and earlier manufactured without ASIC Soft Starts require replacement of both cable harnesses with either part number 100380 or 100381 (depending on compressor model) and the Soft Start. For more information on these, please contact Danfoss Turbocor Product Support.

APPLIES TO: TT300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285							
DESCRIPTION	PART NO.	MAJOR REV	COMMENT				
KIT - COOLING FAN AND ADAPTOR ASSEMBLY	100373-1	ALL	(three wire connector) Includes adaptor and fasteners				
			(two wire connector) Includes adaptor and fasteners				
KIT - COOLING FAN AND ADAPTOR ASSEMBLY	100373	100373	100373	100373	1003/3		Do not use with the Open-Top Soft Start
			*Limited Supply Available - Order 100373-1 once obsoleted				



#### **Soft Start Fuses**

This section only applies to Closed-Top Soft Starts as the Open-Top Soft Starts contain non-removable resettable fuses.

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - FUSES (FIE) SOFT START	100317-1	-N, -P, -C, -D, -E, -F ,-G	Fuses included: QTY 3 - 2A HVA (F1), QTY 3 - 2A SPF (F1), QTY 10 - 1A Nano (F3, F6), QTY 10 - 0.25A Nano (F2), and QTY 6 - 0.25A Midget (F4, F5)	
KIT – FUSES (FIE) SOFT START	100317-2	-F ,-G	For Soft Starts Rev Q and later, Fuses included: QTY 3 - 2A SPF (F1), QTY 10 - 1A Nano (F3, F6), QTY 10 - Nano 0.25A (F2), and QTY 6 - 0.25A Midget (F4, F5)	
KIT- FUSE FAST ACTING NANO SMF 0.25A 125V (FIE) (F2)	100430	-N, -P, -C, -D, -E, -F ,-G	Includes 10 fuses	
KIT- FUSE SMF 0.25A 600V MIDGET TIME-DELAY CC (FIE)	100432	-N, -P, -C, -D, -E, -F ,-G	Includes six (6) fuses	
KIT - FUSE NANO SMF 1A 125V (FIE) (F3, F6)	100433	-N, -P, -C, -D, -E, -F ,-G	Includes 10 fuses	

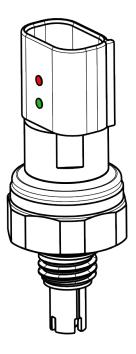
APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT-FUSE 2A 1000V HVA 3" (F1)	100421	-N, -P, -A, -C, -D, -E	For Soft Starts rev P and earlier, includes three (3) fuses	
KIT – FUSE 2A FAST ACTING 1000V SPF (F1)	100422	-F ,-G	For Soft Starts rev Q and later, includes three (3) fuses	

APPLIES TO: TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT – FUSES (FIE) SOFT START	100317-2	ALL	Fuses included: QTY 3 - 2A SPF (F1), QTY 10 - 1A Nano (F3, F6), QTY 10 - Nano 0.25A (F2), and QTY 6 - 0.25A Midget (F4, F5)		
KIT – FUSE 2A FAST ACTING 1000V SPF (F1)	100422	ALL	Includes three (3) fuses		

\*Open-Top Soft Starts contain resettable fuses that do not require replacement.



## **Pressure Temperature Sensor Discharge**

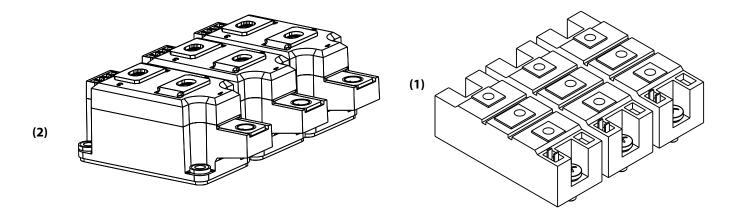


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
*KIT – SENSOR PRESSURE/TEMPERATURE HIGH SIDE	100037-1	ALL	Marked with a red spot and a green spot, contains O-ring	

 $<sup>\</sup>hbox{*Also replaces the TTH/TGH compressor Interstage Pressure/Temperature Sensor.}\\$ 



## **Diode Rectifiers**



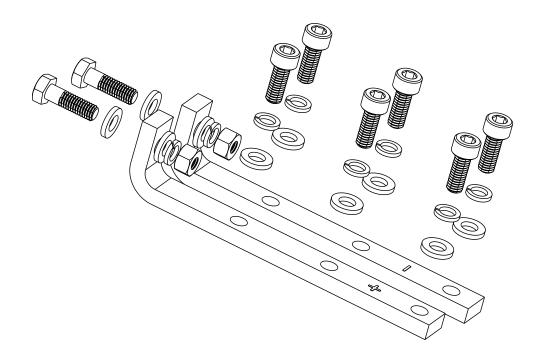
APPLIES TO: TTS300/TGS230			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
(1) KIT - DIODE RECTIFIERS	100047-1	-N, -P, -C, -D, -E, -F , -G, -H	Includes fasteners *Not interchangeable with Kit 100047-3

APPLIES TO: TTS350/TTS500/TTS700/TGS310/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(2) KIT - DIODE RECTIFIERS	100047-2	-P, -A, -C, -E, -F	Includes fasteners	
(1) KIT - DIODE RECTIFIERS	100047-3	-H	Includes fasteners *Not interchangeable with Kit 100047-1	

APPLIES TO: TTS400/TGS390				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(2) KIT - DIODE RECTIFIERS	100047-2	-P, -A, -C, -E, -F	Includes fasteners	
(1) KIT - DIODE RECTIFIERS	100047-1	-H	Includes fasteners  *Not interchangeable with Kit 100047-3	



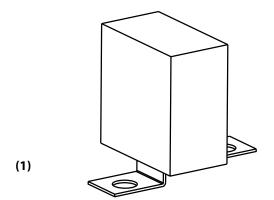
## **Bus Bar Diodes**

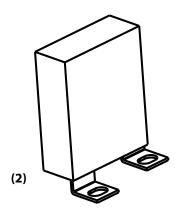


APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - BUS BAR DIODE	100316	ALL	Includes positive and negative Bus Bars, and fasteners	



# **Snubber Capacitors**





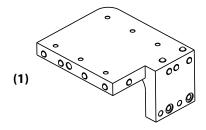
APPLIES TO: TTS300/TGS230				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT – CAPACITOR INVERTER SNUBBER, 0.47Y1000	100417	ALL	Includes three snubbers and fasteners	

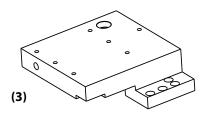
APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT – CAPACITOR INVERTER SNUBBER, 0.47Y1000	100417	-P, -A, -C, -E, -F	Includes three snubbers and fasteners	
(2) KIT – CAPACITOR INVERTER SNUBBER, 0.47X1250	100417-1	-H	Includes three snubbers and fasteners	

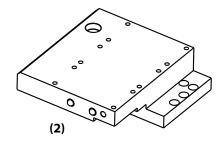
	NOTE
Snubber capacitors should always be replaced as a kit.	

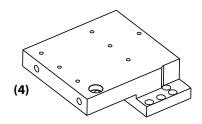


# **SCR Heatsink Assembly**







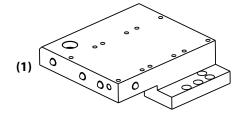


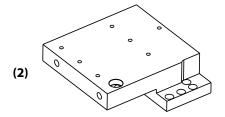
APPLIES TO: TTS300/TGS230					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(1) KIT – HEATSINK COOLING MANIFOLD SCR ASSEMBLY	100309-11	-N, -P, -C, -D, -E, -F ,-G, -H	Includes O-rings and fasteners *(sensor not applicable)		
KIT- O-RING INVERTER ASSY	100310-2	ALL	Replaces Inverter and SCR Heatsink Manifold O-rings and fasteners		

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS310/TGS390/TGS490/TGS520					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(2) KIT - HEATSINK - COOLING MANIFOLD SCR ASSY	100309-13	-P, -A, -C,	Includes O-rings and fasteners		
(TT350) NO SENSOR	100309-13	-E, -F	*(sensor not applicable)		
(3) KIT – HEATSINK COOLING MANIFOLD SCR	100309-9	100200 0	100200		Includes O-rings and fasteners
ASSEMBLY		-H	(sensor not applicable)		
(4) KIT – HEATSINK COOLING MANIFOLD SCR	100200.0	100200 0	High SST Option		
ASSEMBLY	100309-8	-H	Includes O-rings and fasteners		
KIT- O-RING INVERTER ASSY	100310-1	ALL	Replaces Inverter and SCR Heatsink Manifold O-rings and fasteners		



## **SCR Heatsink Assembly (Continued)**







APPLIES TO: TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(1) KIT – HEATSINK COOLING MANIFOLD SCR			Includes O-rings and fasteners		
ASSEMBLY	100309-7	-F	*Not interchangeable with Kit 100309-8.		
(2) VIT HEATSING COOLING MANIFOLD SCD			Includes O-rings and fasteners		
(2) KIT – HEATSINK COOLING MANIFOLD SCR ASSEMBLY	100309-8	-H	*Not interchangeable with Kit 100309-7.		
KIT- O-RING INVERTER ASSY	100310-1	ALL	Replaces Inverter and SCR Heatsink Manifold O-rings and fasteners		

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
(3) KIT – TEMPERATURE SENSOR SCR	100268	-N, -P, -A, -C, -D, -E, -F , -G	Includes washers *Will not work in Rev H compressors.

#### NOTE

The SCR Temperature Sensor is <u>not</u> required on Revision H compressors.

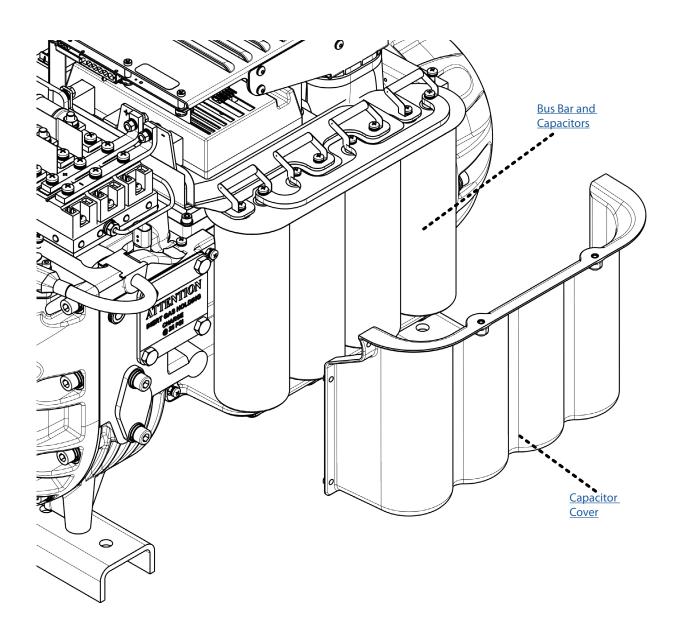


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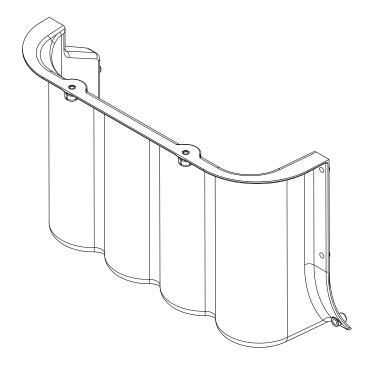
#### **Section 4: Capacitor Side**

This section details the spare part kits that are visible from the discharge side of the compressor underneath the Capacitor and Mains Input cover.





# **Capacitor Cover**



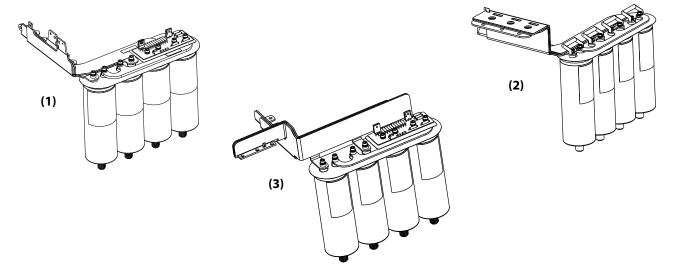
APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TTH375			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER CAPACITOR ASSY (BLACK)	100053-3	ALL	Includes fasteners

APPLIES TO: TGS230/TGS310/TGS390/TGS490/TGS520/TGH285				
DESCRIPTION PART NO. MAJOR REV COMMENT				
KIT - COVER CAPACITOR ASSY (GREEN)	100053-6	ALL	Includes fasteners	

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - COVERS SCREW M5 (P/H STAINLESS STEEL)	100252	ALL	Replaces fasteners for all four covers (24 fasteners)	



# **Bus Bar and Capacitor Assembly**

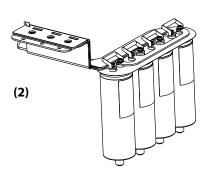


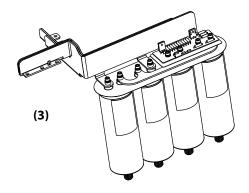
APPLIES TO: TTS300/TGS230			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
(1) KIT - BUS BAR ASSY AND CAPACITORS 6800μF (460V)	100044-7	-N, -P, -C, -D, -E, -F, -G, -H	For use with 460V models, includes nylon nuts
(1) KIT - BUS BAR ASSY AND CAPACITORS 4700μF (575V)	100044-8	-N, -P, -C, -D, -E, -F, -G, -H	For use with 575V models, includes nylon nuts
(1) KIT - BUS BAR ASSY AND CAPACITORS 9000μF (380/400V)	100044-6	-N, -P, -C, -D, -E, -F, -G, -H	For use with 380/400V models, includes nylon nuts

APPLIES TO: TTS400/TGS390			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
(2) KIT - BUS BAR ASSY AND CAPACITORS 11000μF (380/400V)	100044-11	-P, -C, -E, -F	For use with 380V and 400V models, includes nylon nuts
(3) KIT - BUS BAR ASSY AND CAPACITORS 11000μF (380/400V)	100044-14	-H	For use with 380V and 400V models, includes nylon nuts
(2) KIT - BUS BAR ASSY AND CAPACITORS 6800μF (575V)	100044-13	-P, -C, -E, -F	For use with 575V models, includes nylon nuts
(3) KIT - BUS BAR ASSY AND CAPACITORS 6800μF (575V)	100044-16	-H	For use with 575V models, includes nylon nuts
(2) KIT - BUS BAR ASSY AND CAPACITORS 8500μF (460V)	100044-12	-P, -C, -E, -F	For use with 460V models, includes nylon nuts
(3) KIT - BUS BAR ASSY AND CAPACITORS 8500μF (460V)	100044-15	-H	For use with 460V models, includes nylon nuts



# **Bus Bar and Capacitor Assebly (Continued)**



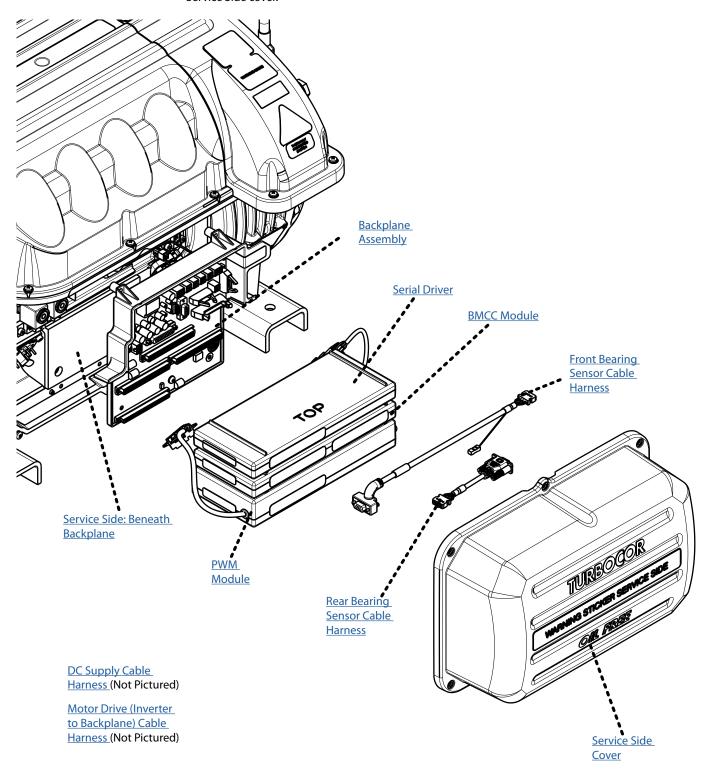


APPLIES TO: TTS350/TTS500/TTS700/TGS310/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(2) KIT - BUS BAR ASSY AND CAPACITORS 8500μF (460V)	100044-12	-A, -E, -F	For use with 460V models, includes nylon nuts	
(3) KIT - BUS BAR ASSY AND CAPACITORS 8500μF (460V)	100044-15	-H	For use with 460V models, includes nylon nuts	
(2) KIT - BUS BAR ASSY AND CAPACITORS 11000μF (380/400V)	100044-11	-A, -E, -F	For use with 380V and 400V models, includes nylon nuts	
(3) KIT - BUS BAR ASSY AND CAPACITORS 11000μF (380/400V)	100044-14	-H	For use with 380V and 400V models, includes nylon nuts	



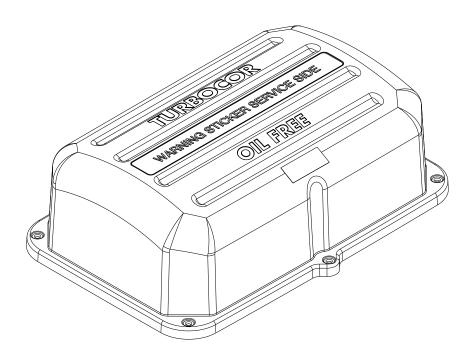
#### **Section 5: Service Side**

This section details the spare part kits available on the service side of the compressor underneath the Service Side cover.





## **Service Side Cover**



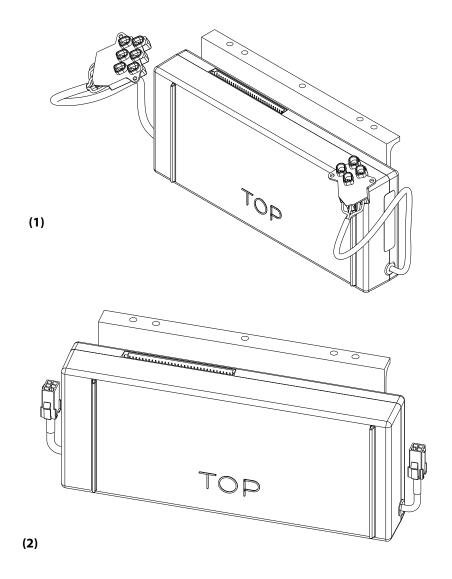
APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TTH375			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - COVER SERVICE SIDE ASSY (BLACK) EN/FR Labels	100055-3	ALL	Includes fasteners

APPLIES TO: TGS230/TGS310/TGS390/TGS490/TGS520/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - COVER SERVICE SIDE ASSY (GREEN) EN/FR Labels	100055-6	ALL	Includes fasteners	

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TG390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
KIT - COVERS SCREW M5 (P/H STAINLESS STEEL)	100252	ALL	Replaces fasteners for all four covers (24 fasteners)	



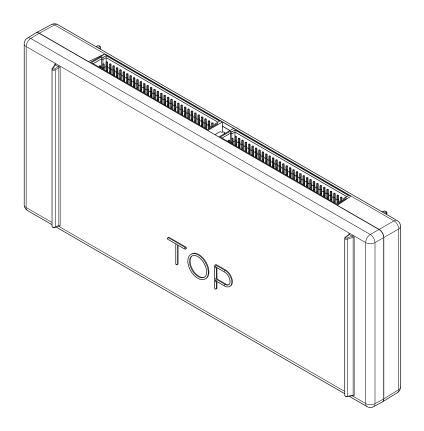
## **PWM Module**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
(1) KIT - MODULE BEARING PWM	100022	-N, -P, -A, -C, -D, -E	Includes fasteners
(2) KIT - MODULE BEARING PWM	100372	-F ,-G, -H	Includes fasteners



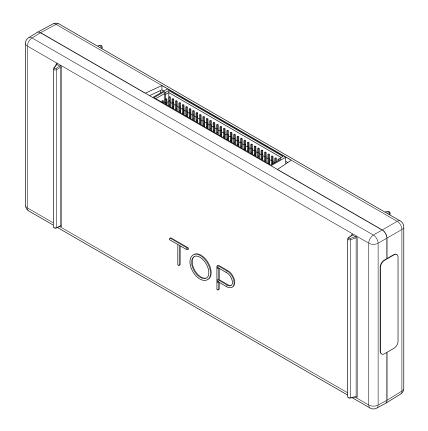
#### **BMCC Module**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
BEARING MOTOR COMPRESSOR CONTROL (BMCC)	201055- xxxxxxx-xxx	ALL	Specific compressor software part number used in place of -xxxxxxx-xxx,  Contains BMCC with compressor specific software only	



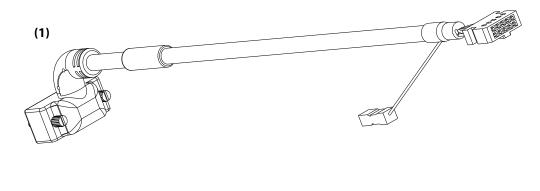
#### **Serial Driver**

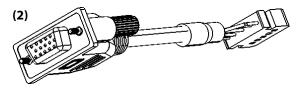


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT – MODULE SERIAL DRIVER	100292	ALL	Serial Driver Only



# **Rear/ Front Bearing Sensor Cable Harness**

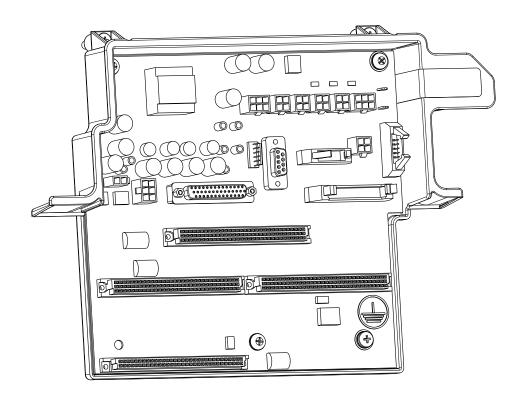




APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285				
DESCRIPTION	PART NO.	MAJOR REV	COMMENT	
(1) KIT - CABLE HARNESS REAR BEARING SENSOR	100065	ALL	Cable Only	
(2) KIT - CABLE HARNESS FRONT BEARING SENSOR	100064	ALL	Cable Only	



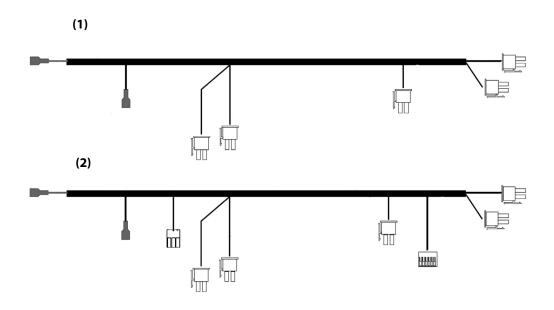
# **Backplane Assembly**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT – MODULE BACKPLANE ASSY	100021-1	ALL	Includes screws and washers



# **DC Supply Cable Harness**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
(1) KIT - CABLE HARNESS DC-DC TO BACKPLANE	100323	-A, -N, -P, -C, -D, -E	Cable Only		
(2) KIT – CABLE HARNESS DC-DC TO BACKPLANE SS TEMP	100323-2	-F, -G, -H	Cable Only		



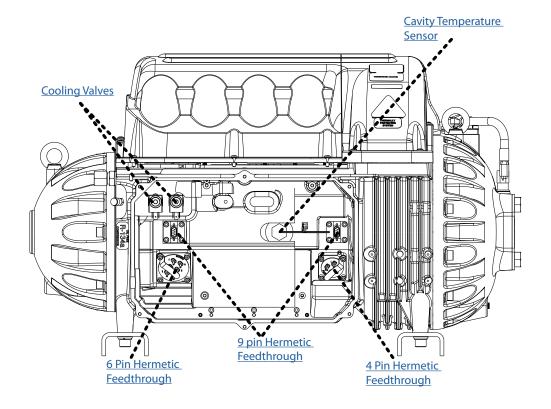
# **Motor Drive (Inverter to Backplane) Cable Harness**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT - CABLE HARNESS MOTOR DRIVER (INVERTER TO BACKPLANE)	100061	ALL	Cable Only		



## **Service Side Beneath Backplane**



Service Side O - Rings (Not Pictured)

<u>Compressor Cooling Cable and Coil</u> (Not Pictured)

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
KIT - O-RINGS (SERVICE SIDE SMALL O-RINGS)	100052-2	ALL	Includes O-rings for cooling valves and 6 Pin, 4 Pin and 9 Pin Hermetic Feedthroughs (Excludes R22)			
KIT - O-RING SOLENOID ORIFICE	100242	ALL	Only replaces cooling valve O-rings (Excludes R22)			



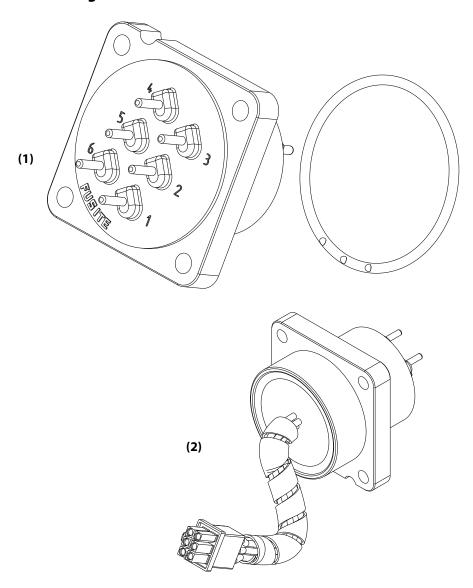
## **Compressor Cooling Cable and Coil Assembly**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
KIT - CABLE HARNESS MOTOR-COOLING AND COIL ASSY	100063-1	ALL	Includes nut and washer			



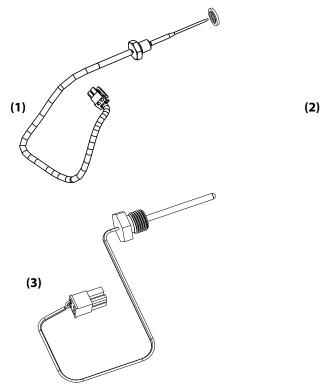
## **6 Pin Hermetic Feedthrough**

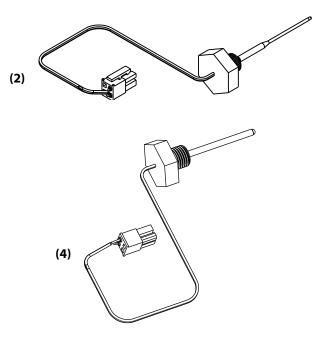


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
(1) KIT - HEREMETIC FEEDTHROUGH 6 PIN	100294-1	-N, -P, -A, -C, -D, -E	Includes O-ring and fasteners (excludes R22)			
(2) KIT - HEREMETIC FEEDTHROUGH 6 PIN	100371	-F, -G, -H	Includes O-ring and fasteners (excludes R22)			



## **Cavity Temperature Sensor/ Motor Rotor**



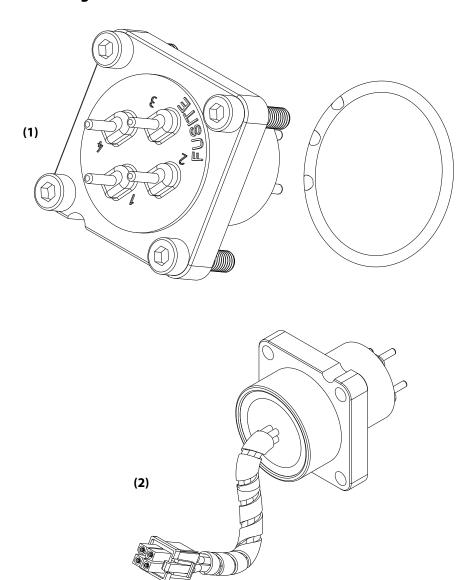


APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390/TGS490/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
(1) KIT – CAVITY TEMPERATURE SENSOR TT300, TT350, AND TT400	100034	-N, -P, -A, -C, -D	Do not use if compressor PN ends in "-3", Can be used with SIE models, Sensor Only (excludes R22)			
(2) KIT - SENSOR ASSY TEMPERATURE MOTOR ROTOR	100196-3	-E, -F, -G, -H	Also use if compressor part num- ber ends in "-3", Includes O-ring (excludes R22)			

APPLIES TO: TTS500/TTS700/TGS520						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
(3) KIT - CAVITY TEMPERATURE SENSOR TT500	100034-1	-A	Do not use if compressor PN ends in "-3", Includes O-ring (excludes R22)			
(4) KIT - SENSOR ASSY TEMPERATURE MOTOR ROTOR	100196-4	-E, -F, -G, -H	Also use if compressor part number ends in "-3", sensor only			



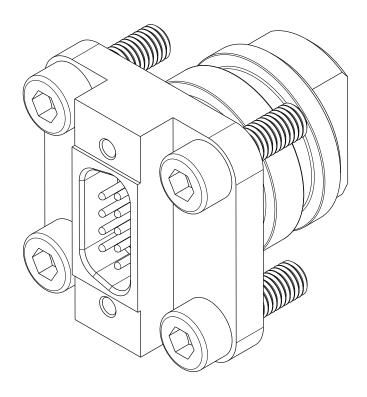
## 4-Pin Hermetic Feedthrough



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
(1) KIT - HERMETIC FEEDTHROUGH 4 PIN	100293-1	-N, -P, -A, -C, -D, -E	Includes O-ring and fasteners (excludes R22)			
(2) KIT - HERMETIC FEEDTHROUGH 4 PIN	100370	-F,-G, -H	Includes O-ring and fasteners (excludes R22)			



## 9-Pin Hermetic Feedthrough

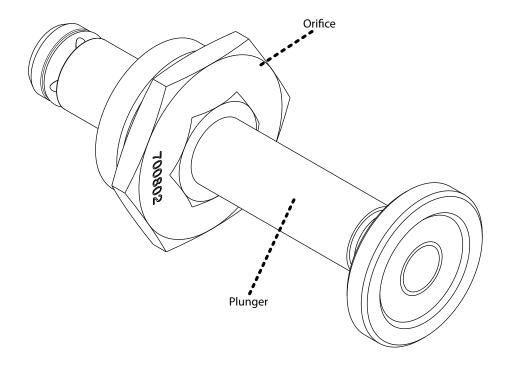


APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285					
DESCRIPTION PART NO. MAJOR REV COMMENT					
KIT - HERMETIC FEEDTHROUGH 9 PIN	100295-1	ALL	Includes O-rings and fasteners (excludes R22)		



## **Cooling Valves Assembly**

Each Cooling Valve Assembly spare part kit contains two Plunger Assemblies, two Orifices for the Inverter and Motor Cavity ports, and the O-rings required to replace them. The table on the following page is organized so that each row contains all of the related cooling valve kits. Plunger Assembly kits include O-rings, which cannot be ordered separately. Orifice kits do not include O-rings therefore they must be purched separately.





## **Cooling Valves**

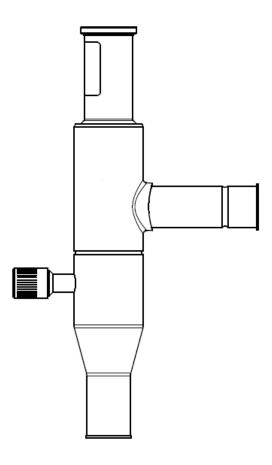
MODEL	COOLING V ASSEMI		MOTOR CAVITY AND INVERTER ORIFICES		PLUNG	ER
MODEL	DESCRIPTION	PART NO.	DESCRIPTION	PART NO	DESCRIPTION	PART NO.
TTS300	KIT - COOL- ING VALVES	100150-8	KIT - ORIFICE BODY,	100236 *	KIT - PLUNG- ER ASSY,	100235
TGS230	ASSEMBLY TT300	100130-0	COOLING 1.3MM	100230	SOLENOID	100233
<b>TTS400</b> 380V, 400V & 460V	KIT - COOL- ING VALVES ASSEMBLY TT400	100150- 10	KIT - ORIFICE BODY, COOLING 1.6MM	100240 *	KIT - PLUNG- ER ASSY, SOLENOID	100235

## \* No O-ring included - part number 100242 should be ordered with any orifice kit.

	COOLING V	ALVES		ORIF	ICES		PLUNGER	
MODEL	ASSEMI	BLY	MOTOR CAVITY		INVERTER		PLUNGER	
	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.
TTS400 575V TGS310 TGS390	KIT - COOL- ING VALVES ASSEMBLY	100150-6	KIT - ORI- FICE BODY, COOLING 2.0MM	100239*	KIT - ORI- FICE BODY, COOLING 1.6MM	100240 *	KIT - PLUNG- ER ASSY, SOLENOID	100235
TT500 TTS700 TGS520	KIT - COOL- ING VALVES ASSEMBLY	100150-9	KIT - ORI- FICE BODY, COOLING 2.5MM	100238*	KIT - ORI- FICE BODY, COOLING 1.6MM	100240 *	KIT - PLUNG- ER ASSY, SOLENOID	100235
TTH375 TGH285	KIT - COOL- ING VALVES ASSEMBLY	100150- 12	KIT - ORI- FICE BODY, COOLING 2.5MM	100238*	KIT - ORI- FICE BODY, COOLING 2.5MM	100238*	KIT - PLUNG- ER ASSY, SOLENOID	100235
TTS350 TGS490	KIT - COOL- ING VALVES ASSEMBLY	100150- 11	KIT - ORI- FICE BODY, COOLING 2.5MM	100238*	KIT - ORI- FICE BODY, COOLING 2.0MM	100239*	KIT - PLUNG- ER ASSY, SOLENOID	100235



## **Pressure Regulating Valve**

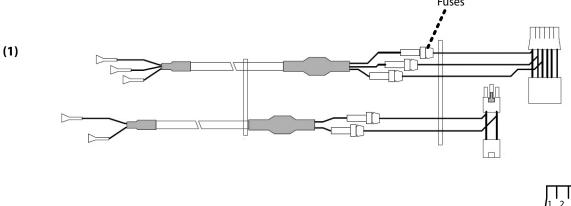


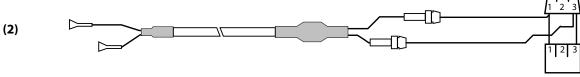
APPLIES TO: TTS300/TGS230/TGH375/TGH285 MEDIUM TEMP					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT - Pressure Regulating Valve (Evaporator pressure regulator)	034L0025	ALL	KVP 22, Inlet size [mm]: 22.00, Inlet connection type: SOLDER, ODF, Outlet size [mm]: 22.00, Outlet connection type: SOLDER, ODF		



## **Appendix A - Test Equipment**

#### **DC Bus Test Harness**





APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION	PART NO.	MAJOR REV	COMMENT			
(1) KIT – CABLE HARNESS DC BUS TEST LEAD	100326	-N, -P, -A, -C, -D, -E, -F, -G	Cable Only			
(2) KIT – CABLE HARNESS DC BUS TEST LEAD	100101	-H	Cable Only			

#### **Compact Inverter Tester**

The Compact Inverter Tester allows users to verify the inverter is correctly functioning, and to verify the functionality of the inverter control card. Testing can be accomplished without the removal of the inverter assembly.

The Compact Inverter Tester provides all power necessary to interface with the inverter module during testing. This device will test the high voltage section, both top and bottom diodes of each section, and the driver board of the inverter.

#### **TOOLS/ACCESSORIES**

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT - INVERTER TESTER	100377	ALL	Includes power adapter, AC plug (US and Europe), data cables, and user manual		

**NOTE:** Only static tests can be performed by the **Compact Inverter Tester**.

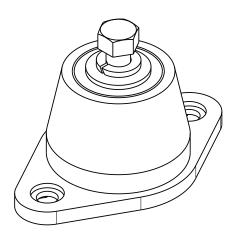


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#### **Appendix B - Accessory Kits**

#### **Rubber Mounts**



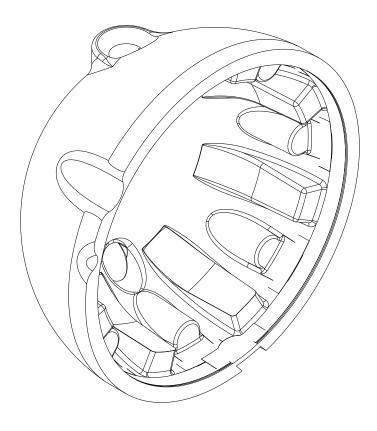
APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT – MOUNTING	100066	ALL	Includes fasteners and washers for mounting compressor to the mount. Rubber mount to chiller fasteners are not included.		

Neoprene mountings shall have a maximum static deflection of 0.4" (10mm). All metal surfaces shall be neoprene covered and have friction pads at the bottom. Bolt holes shall be provided on the bottom and a tapped hole and cap screw on top. Aluminum rails shall be used above the mountings under the compressor such as small vent sets to compensate for the overhang.

Maximum Deflection: 10mm (0.4")
Material: Neoprene Duro Meter 50
Tightening Torque: 27± 3 Nm (20 ± 4 lb.ft)
Capacity Range: 50 -107 kg (110 - 236 lb) EACH



## **End Cap Insulation**



APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT – END CAP INSULATION	100147	ALL	Includes endcap insulation and silicone adhesive			

The End Bell Kit insulates the compressor's end bell to prevent condensation due to the motor-cooling circuit located on this end of the compressor.

- Size: 11 1/2" diameter
- Flame Class: HF-1
- Compatible with all compressor models
- UL approved
- Material: Polystyrene Grade 54



#### **EMI/ECI Filters**

The EMI/EMC Filter minimizes harmonics in the higher frequency domain (typically above 1kHz). In order for the compressor to be CE-compliant, it should be located between the disconnect switch and the line reactor.

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT – EMI/EMC FILTER (CE) 322A	901866	ALL	Filter only			

#### **Specifications**

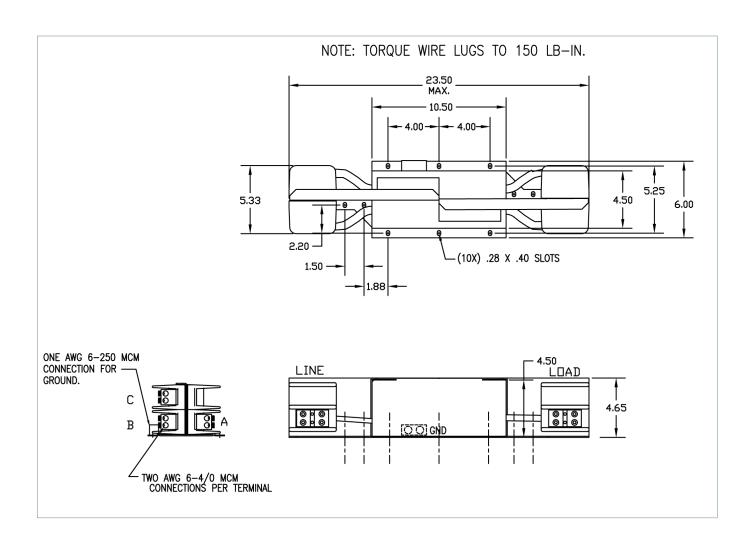
#### 901866

- Approved to UL 1283
- Max leakage current each line to ground:
- 90mA @ 250VAC 60Hz
- 180mA @ 480VAC 60Hz
- Designed to comply to EN 133200. CSA 22.2 No. 8
- Hi Pot (1 Min)
- L/G 2210VDC
- L/L 2780VDC
- Rated voltage: up to 480VAC max 50/60Hz

- (3 Phase)
- Hi Pot (1 Min)
- A-G, B-G, C-G (3 tests)
- A-B, B-C, A-C (3 tests)
- Rated current:
- 322A @ 40°C operating ambient temp
- Humidity range: 0-95% R.H.
- Power dissipation @ rated current: 30W max
- Weight: 35 lbs max



#### 901866





#### **Line Reactors**

The line reactor acts as an input buffer between the motor drive power circuits and the AC line power. Line reactors provide additional circuit impedance that improves power factor, reduces line current harmonics and dampens the transient voltages on the power line, thereby protecting the electronic motor drive components.

APPLIES TO: TTS300/TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT - LINE REACTOR 240A - 5%	901832	ALL	Line Reactor only			

#### **Specifications**

- Ambient Temperature Max: 40°C (104°F)
- Type: dry, air-cooled, open terminals
- Flux density @ rated current: <1.6 tesla
- Agency approvals:
- Manufactured to UL Standard 508
- UL recognized to file # E116124
- CSA certified LR86011
- · CE marked
- Core type: high permeability silicon, non-grain-oriented (N.G.O.),
  - laminated core
- Phase/Frequency: 3-phase/ 50/60 Hz
- Cooling type: air-cooled
- Supply voltage: up to 480Vac (600 Max).
- Q factor at rated current, 60

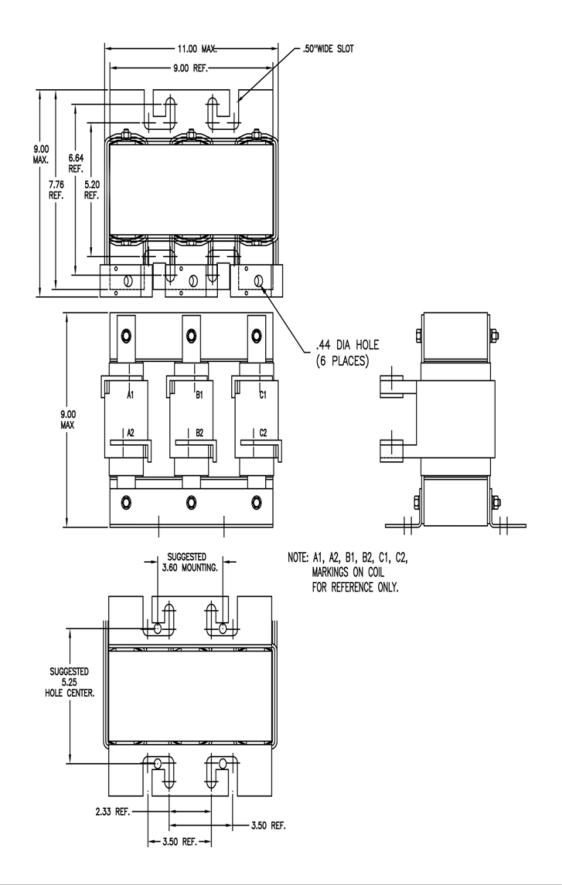
- Hz: approx. 22
- Rated current: 140A
- Insulation class: Class H 220
- Inductance: 0.50mH ±10%
- Dielectric strength tested @:
   2.2kVac for
   1 minute according to UL508
  - Total losses, basic current: approx. 500 W
- Temp rise @ rated current: <155°C (<279°F)
- Dimensions: 229H x 279W x 236D (in mm)
   9H x 11W x 9.3D (in inches)
- Mass: 43 kg (95 lbs)
- Impregnation: dip and bake process to varnish, class H insulation standard
- Terminals: copper bus bar, hole to suit M8 bolt

#### NOTE

- Failure to install a line reactor will result in a higher-than-rated current draw, larger cabling requirements, and lower power factor.
- Order this part number when the line reactor is used in conjunction with a harmonic filter.



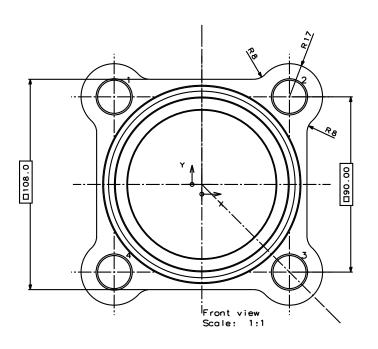
#### 901832

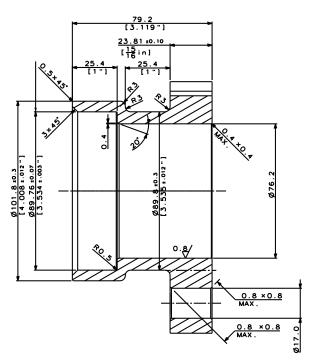




## Appendix B - Accessory Kits (Continued) Suction Flange

APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390/TGS490/TTH375/TGH285						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT - SUCTION FLANGE (STEEL)	100151-1	ALL	Includes flange, fasteners, and O-ring			

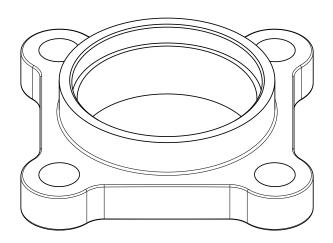






# Appendix B - Accessory Kits (Continued) Suction Flange

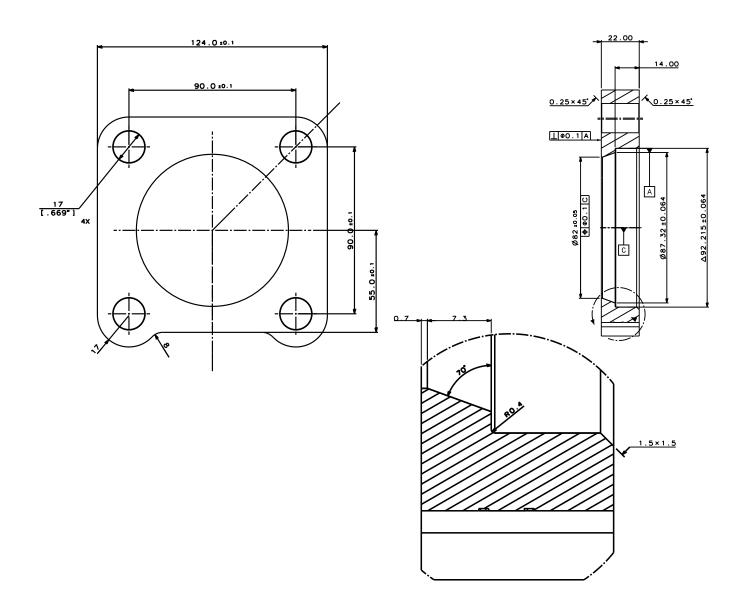
APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390/TGS490/TTH375/TGH285					
DESCRIPTION PART NO. MAJOR REV COMMENT					
KIT - SUCTION FLANGE (BRASS)	100402-1	ALL	Includes flange, fasteners, and O-ring		





## Appendix B- Accessory Kits (Continued) Suction Flange

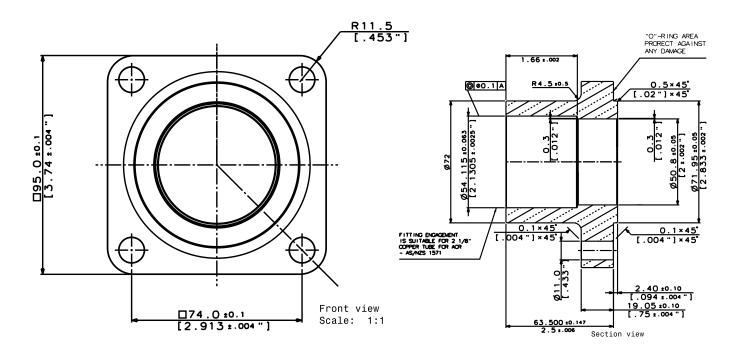
APPLIES TO: TTS500/TTS700/TGS490/TGS520			
DESCRIPTION	PART NO.	MAJOR REV	COMMENT
KIT - SUCTION FLANGE 3 5/8" (BRASS)	100378	ALL	Includes flange, fasteners, and O-ring





## **Discharge Flange**

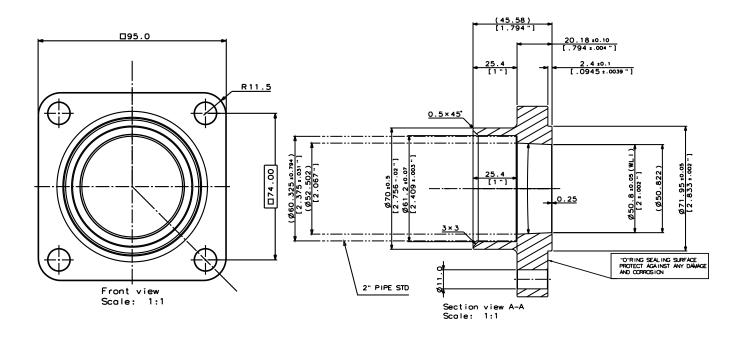
APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390/TGS490/TTH375/TGH285					
DESCRIPTION PART NO. MAJOR REV COMMENT					
KIT - DISCHARGE FLANGE (BRASS) 100152 ALL Includes flange, fasteners O-ring					





## Appendix B- Accessory Kits (Continued) Discharge Flange

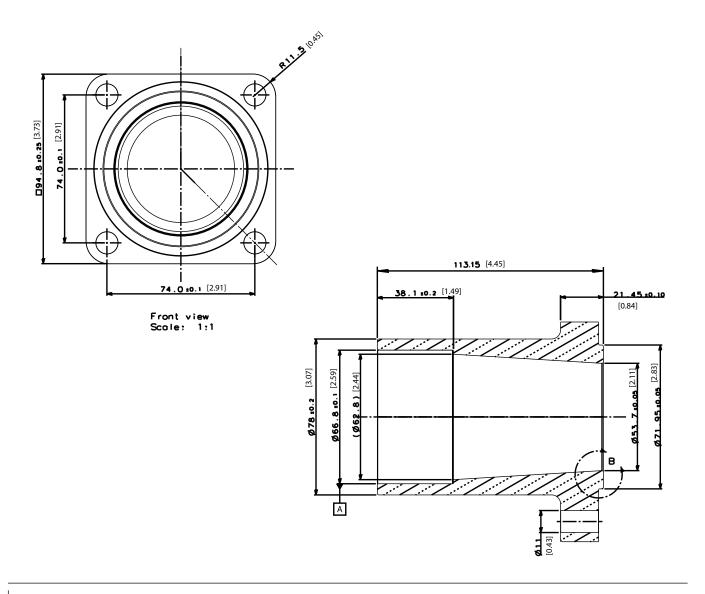
APPLIES TO: TTS300/TTS350/TTS400/TGS230/TGS310/TGS390/TGS490/TTH375/TGH285						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT - DISCHARGE FLANGE (STEEL)	100153-1	ALL	Includes flange, fasteners, and O-ring			





## Appendix B - Accessory Kits (Continued) Discharge Flange

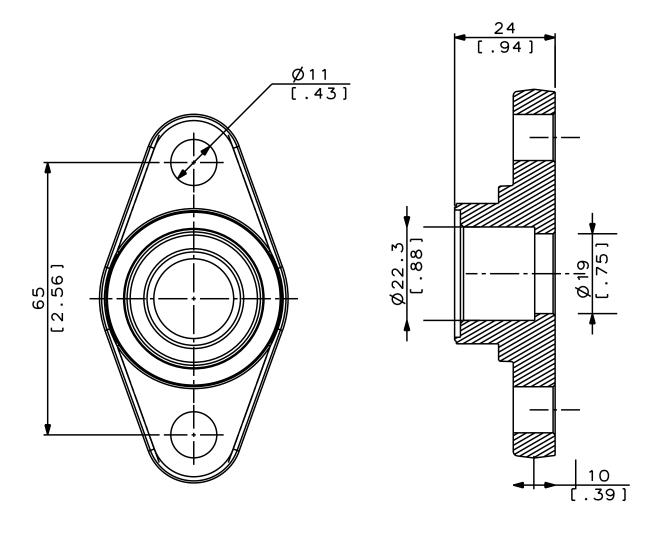
APPLIES TO: TTS500/TTS700/TGS490/TGS520					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT - DISCHARGE BRASS FLANGE FOR 2-5/8" COPPER PIPE	100254	ALL	Includes flange, fasteners, and O-ring		





## **Economizer Flange**

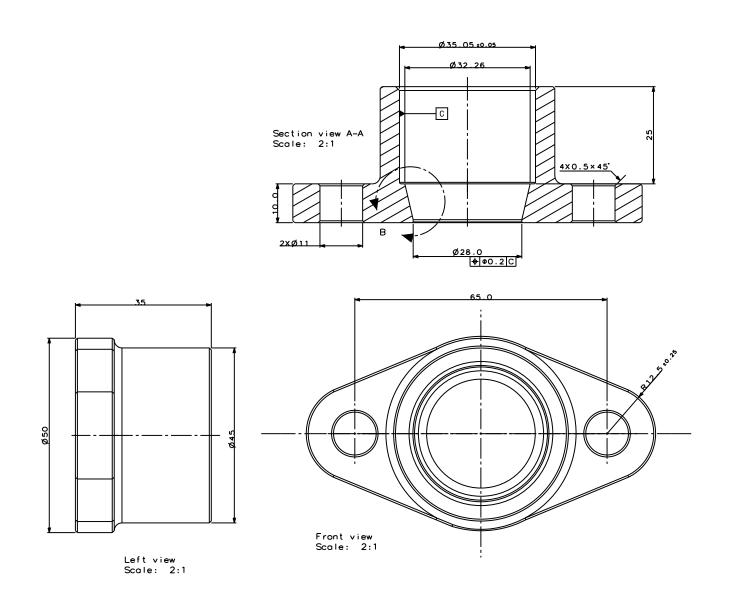
APPLIES TO: TTS300/TGS230					
DESCRIPTION	PART NO.	MAJOR REV	COMMENT		
KIT - ECONOMIZER FLANGE 7/8" (BRASS)	100400	ALL	Includes flange, fasteners, and O-ring		





## **Economizer Flange**

APPLIES TO: TTS350/TTS400/TTS500/TTS700/TGS230/TGS310/TGS390/TGS490/TGS520/TTH375/TGH285						
DESCRIPTION PART NO. MAJOR REV COMMENT						
KIT - ECONOMIZER FLANGE 1 3/8" (BRASS)	100450-1	ALL	Includes flange, fasteners, and O-ring			





## Appendix C - Recently Obsoleted Kit Reference

	OBSOLETE KIT	OBSOLETE KIT	REPLACE	MENT KIT
PART NO.	DESCRIPTION	APPLICATION	PART NO.	DESCRIPTION
100020-1	KIT - MODULE SOFT START (460V)	ALL 460V MODELS		
100020-2	KIT - MODULE SOFT START (575V)	ALL 575V MODELS	100020-19	Refer to "Soft Start Assembly" on
100020-3	KIT - MODULE SOFT START (400V)	ALL 400V MODELS	100020-20	page 49 for the proper replace- ment kit
100020-4	KIT - MODULE SOFT START (380V)	ALL 380V MODELS	100020-20	
100050-24	KIT - IGV - DRIVE ASSEMBLY AND O-RING TGS490	-F, -H	100050-25	KIT - IGV - DRIVE ASSEMBLY AND O-RING TGS490
100237	KIT - ORIFICE BODY, COOLING 1.5MM	Use with: TT400 Rev: -P	100	)240
100250	KIT - IGV THROAT - TGS490	-F, -H	100261	KIT - IGV THROAT - TGS490
100309-5	KIT – HEATSINK COOLING MANIFOLD SCR ASSEMBLY	Use with: TTS350, TTS400, TTS500, TTS700, TGS310, TGS390, TGS490, TGS520 Rev: -P, -A, -C, -E, -F	100309-13	KIT – HEATSINK – COOLING MANIFOLD SCR ASSEMBLY (TT350) NO SENSOR
100309-6	KIT – HEATSINK COOLING MANIFOLD SCR ASSEMBLY	Use with: TTS300/TGS230 Rev: -N, -P, -C, -D, -E, -F, -G	100309-11	KIT – HEATSINK – COOLING MANIFOLD SCR ASSEMBLY
100322	KIT - CABLE HARNESS COMPRESSOR CONTROLLER	-N, -P, -C, -D, -E, -F, -G	100322-5	KIT - CABLE HARNESS COMPRESSOR CONTROLLER
100375	KIT - HARMONIC RESISTOR PLUG	ALL	Kit no longe	er supported
100515	KIT - CONVERSION-SIE TO THE CURRENT ELECTRONICS (400V)	ALL 400V SIE MODELS	Kit no longe	er supported
100516	KIT - CONVERSION-SIE TO THE CURRENT ELECTRONICS (460V)	ALL 460V SIE MODELS	Kit no longe	er supported
100703-1	KIT - INTERSTAGE PIPE	-A	Order Kit 100703-3 and 100	
100706-1	KIT - SECOND STAGE HOUSING	-A	Order Kit 100703	3-3 and 100706-3
901453	KIT - LINE REACTOR 140A - 10%	TTS300/TGS230	Kit no longe	er supported
901666	KIT - EMI FILTER (CE) 185A	ALL MODELS	DDELS 901866 KIT – I FILTER	
901974	KIT - LINE REACTOR 140A - 5%			KIT - LINE REAC- TOR 240A - 5%
901975	KIT - LINE REACTOR 180A - 5%	ALL MODELS	901832	KIT - LINE REAC- TOR 240A - 5%











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