



## **Annex to certificate**

**Parker Hannifin 080228 P0001 C001.12**

List of covered Solenoid Valves types F, V, X and N

Customer:

**Parker Hannifin Manufacturing SRL**  
Corsico ( MI )  
ITALY



Contract No.: Parker Hannifin 0802-28-C

Report No.: Parker Hannifin 0802-28-C R006 Certificate Annex

Version V5, Revision R1, May 2020

## Purpose and scope

This annex to the certificate Parker Hannifin 080228 P0001 C001.12 contains the listing of all the certified combinations of the Solenoid Valves types F, V, X and N together with their electrical parts.

	
Assessor Peter Söderblom, Senior Safety Engineer	Certifying assessor Steven Close, Senior Safety Engineer

## 1 Type overview with failure rates according to IEC 61508:2010

Profile 3: Mechanical field products have minimal self heating and are subjected to daily temperature swings.

"U" present in front of the valve codification stands for NPT connections (e.g. U133X5196), whereas "U" absent stands for BPS connections (e.g. 133X5196).

### Valves series F & V

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]		
			Profile 3		
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dang}$	
U131F5695 U131F5295 U121V5595 U121V7595 U133V5595 U133V7595 U133V5695 U133V7695	492965	2.3W	154	40	
	496565	2.3W	154	40	
	492210	2.3W	154	40	
	492310	6W	111	40	
	496555	6W	111	40	
	496700	6W	111	40	
	496560	8W	111	40	
	496800	8W	111	40	
	U121V5596	492310	6W	111	40
		496555	6W	111	40
496700		6W	111	40	
496560		8W	111	40	
496800		8W	111	40	

Valves series X

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]	
			Profile 3	
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dang}$
U131X1201 (U)131X1101	492965	2.3W	119	132
	496565	2.3W	119	132
	492210	2.3W	119	132
	492310	6W	76	132
	496555	6W	76	132
	496700	6W	76	132
	496560	8W	76	132
	496800	8W	76	132
U133X5156 U133X5195 U133X7195 U133X5196 U133X5296 U133X7296 (U)133X01 U133X0111 U133XS9443	492965	2.3W	119	131
	496565	2.3W	119	131
	492210	2.3W	119	131
	492310	6W	76	131
	496555	6W	76	131
	496700	8W	76	131
	496560	8W	76	131
	496800	8W	76	131
U133X7156 U133X7196 U133X7759 U133X7709	492965	2.3W	119	131
	496565	2.3W	119	131
	492210	2.3W	119	131
	492310	6W	76	131
	496555	6W	76	131
	496700	6W	76	131
	497105	8W	76	131
	496560	8W	76	131
	496800	8W	76	131
131X1131	492310	6W	76	132
	496555	6W	76	132
	496700	6W	76	132
	496560	8W	76	132
	496800	8W	76	132

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]	
			Profile 3	
Valve Body	Electrical Part	Power	$\lambda_{\text{safe}}$	$\lambda_{\text{dang}}$
U133X5152 U133X5192	492310	6W	76	131
	496555	6W	76	131
	496700	6W	76	131
	496560	8W	76	131
	496800	8W	76	131
U033X0111 U033X5152 U033X5156 U033X5256 U033X5195 U033X7195 U033XS9443	482870	3W	76	131
	492310	6W	76	131
	496555	6W	76	131
	496700	6W	76	131
	496560	8W	76	131
	496800	8W	76	131
	496800	8W	76	131
U033X7156 U033X7759	492310	6W	76	131
	496555	6W	76	131
	496700	6W	76	131
	497105	8W	76	131
	496560	8W	76	131
	496800	8W	76	131
U331X2309	492965	2.3W	119	116
	496565	2.3W	119	116
	492310	6W	76	116
	496555	6W	76	116
	496700	6W	76	116
	497105	8W	76	116
	496560	8W	76	116
	496800	8W	76	116

**Valves series N**

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]	
			Profile 3	
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dang}$
341 N31 341 N32	483371	8W	102	241
	495905	8W	102	241
	481000	8W	102	241
	481865	8W	102	241
	482725	8W	102	241
	496110	9W	102	241
	483510	9W	102	241
341 N32	496155	14W	327	241
341 N3102	483371	8W	102	241
	481000	8W	102	241
	481865	8W	102	241
	482725	8W	102	241
341 N3108	495905	8W	102	241
	481000	8W	102	241
	481865	8W	102	241
	482725	8W	102	241
341 N3130	495905	8W	102	241
	481865	8W	102	241
	482725	8W	102	241
341 N3190 341 N3290	483580..	2.3W	102	241
	483960..	2.3W	102	241
	488650..	3W	102	241
	488660..	3W	102	241
341 N3197 341 N3297	496125	1.6W	52	241
	482740	1.6W	52	241
	482745	1.6W	52	241
341 N3197	495910	2.3W	145	241
341 N3197	495900	2.5W	102	241

## 2 Type overview with corresponding failure rates and partial valve stroke testing (PVST)

Partial Valve Stroke testing of the SIF provides a full cycle test of the solenoid valve. Further information about PVST can be found in the draft technical report ISA-TR96.05.01-200\_. As the diagnostic coverage (DC) depends on the quality of the PVST (time measurement) for certain failure modes only a DC of 75% was assumed.

Profile 3: Mechanical field products have minimal self heating and are subjected to daily temperature swings.

"U" present in front of the valve codification stands for NPT connections (e.g. U133X5196), whereas "U" absent stands for BPS connections (e.g. 133X5196).

### Valves series F & V

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]		
			Profile 3		
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dd}$	$\lambda_{du}$
U131F5695	492965	2.3W	154	37	3
	496565	2.3W	154	37	3
U131F5295	492210	2.3W	154	37	3
U121V5595	492310	6W	111	37	3
U121V7595	496555	6W	111	37	3
U133V5595	496700	6W	111	37	3
U133V7595	496560	8W	111	37	3
U133V5695	496800	8W	111	37	3
U133V7695					
U121V5596	492310	6W	111	37	3
	496555	6W	111	37	3
	496700	6W	111	37	3
	496560	8W	111	37	3
	496800	8W	111	37	3

Valves series X

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]		
			Profile 3		
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dd}$	$\lambda_{du}$
U131X1201 (U)131X1101	492965	2.3W	119	108	25
	496565	2.3W	119	108	25
	492210	2.3W	119	108	25
	492310	6W	76	108	25
	496555	6W	76	108	25
	496700	6W	76	108	25
	496560	8W	76	108	25
	496800	8W	76	108	25
U133X5156 U133X5195 U133X7195 U133X5196 U133X5296 U133X7296 (U)133X01 U133X0111 U133XS9443	492965	2.3W	119	108	25
	496565	2.3W	119	108	25
	492210	2.3W	119	108	25
	492310	6W	76	108	25
	496555	6W	76	108	25
	496700	6W	76	108	25
	497105	8W	76	108	25
	496560	8W	76	108	25
	496800	8W	76	108	25
	U133X7156 U133X7196 U133X7759 U133X7709	492965	2.3W	119	108
496565		2.3W	119	108	25
492210		2.3W	119	108	25
492310		6W	76	108	25
496555		6W	76	108	25
496700		6W	76	108	25
497105		8W	76	108	25
496560		8W	76	108	25
496800		8W	76	108	25
131X1131	492310	6W	76	108	25
	496555	6W	76	108	25
	496700	6W	76	108	25
	496560	8W	76	108	25
	496800	8W	76	108	25
U133X5152 U133X5192	492310	6W	76	108	25
	496555	6W	76	108	25
	496700	6W	76	108	25
	496560	8W	76	108	25
	496800	8W	76	108	25



Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]		
			Profile 3		
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dd}$	$\lambda_{du}$
U033X0111	482870	3W	76	108	25
U033X5152	492310	6W	76	108	25
U033X5156	496555	6W	76	108	25
U033X5256	496700	6W	76	108	25
U033X5195	496560	8W	76	108	25
U033X7195	496800	8W	76	108	25
U033XS9443	496800	8W	76	108	25
U033X7156 U033X7759	492310	6W	76	108	25
	496555	6W	76	108	25
	496700	6W	76	108	25
	497105	8W	76	108	25
	496560	8W	76	108	25
	496800	8W	76	108	25
U331X2309	492965	2.3W	119	94	21
	496565	2.3W	119	94	21
	492310	6W	76	94	21
	496555	6W	76	94	21
	496700	6W	76	94	21
	497105	8W	76	94	21
	496560	8W	76	94	21
	496800	8W	76	94	21

## Valves series N

Solenoid			Failure Rate in FIT [:= 10 <sup>-9</sup> /h]		
			Profile 3		
Valve Body	Electrical Part	Power	$\lambda_{safe}$	$\lambda_{dd}$	$\lambda_{du}$
341 N31 341 N32	483371	8W	102	187	54
	495905	8W	102	187	54
	481000	8W	102	187	54
	481865	8W	102	187	54
	482725	8W	102	187	54
	496110	9W	102	187	54
	483510	9W	102	187	54
341 N32	496155	14W	327	187	54
341 N3102	483371	8W	102	187	54
	481000	8W	102	187	54
	481865	8W	102	187	54
	482725	8W	102	187	54
341 N3108	495905	8W	102	187	54
	481000	8W	102	187	54
	481865	8W	102	187	54
	482725	8W	102	187	54
341 N3130	495905	8W	102	187	54
	481865	8W	102	187	54
	482725	8W	102	187	54
341 N3190 341 N3290	483580..	2.3W	102	187	54
	483960..	2.3W	102	187	54
	488650..	3W	102	187	54
	488660..	3W	102	187	54
341 N3197 341 N3297	496125	1.6W	52	187	54
	482740	1.6W	52	187	54
	482745	1.6W	52	187	54
341 N3197	495910	2.3W	145	187	54
341 N3197	495900	2.5W	102	187	54

### 3 Status of the document

#### 3.1 Releases

Version History:	V1, R0:	Initial version 24 September 2009
	V1, R1:	Updated after review, 27 October 2009
	V1, R2:	Electrical part number 497105 added April 2014
	V2, R0:	Updated to IEC 61508:2010 September 2014
	V2, R1:	Minor typo corrected.
	V2, R2:	New certificate revision January 2015
	V2, R3:	Typos corrected February 2015
	V4, R0:	Company name change November 2017
	V4, R1:	Added valves U331X2309, U033X0111, U133X7759, U133X7709 and U033X7759. 1D variants removed as obsolete, 16 Apr 2019.
	V4, R2:	Coils 496555 and 496700 added to U331X2309, 18 Jun 2019.
	V5, R0:	Updated after surveillance audit 19 Feb 2020.
	V5, R1:	Updated to route 2 <sub>H</sub> 4 May 2020.

Author:	Peter Söderblom	
Review:	V1, R0	Audun Opem, Certifying assessor, Customer
	V1, R2	Dr. Cornelius Rieß, Certifying assessor
	V2, R0	Dr. Cornelius Rieß, Certifying assessor
	V4, R0	Customer
	V5, R0	Steven Close, Certifying assessor

Release status: Released