



Operating manual

For medium pressure relief valve and reflux blocking valve Type PPR... and PRR...

PPR/F



**PPR/D
PRR**



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1 General information

This operating manual is for handling pressure regulators. Operating errors can be prevented only with knowledge of this operating manual.

Operating personnel must be informed about the contents of this operating manual.

Improper use may result in hazard to life for the user or other third parties and/or damage to other material assets.

We reserve the right to make technical modifications for improvement purposes to the comparisons and information in this operating manual.

2 Warranty provisions

There shall be no liability, or the warranty shall be void under the following conditions:

- The information and instructions of the operating manual are not followed.
- The devices are improperly used.
- The devices are used for purposes other than their intended one.
- Any type of functional changes conducted without the written permission of ZIMMERLI MESSTECHNIK AG.
- Disregard of the applicable safety regulations when operating the device.
- Guards were not used or functionality was disabled.

Only approved, original spare parts must be used when replacing parts and/or for procuring spare parts.

3 Purpose

These type of pressure regulators are suitable for various tasks (e.g. inerting containers with inactive gases or pressure regulation of pure liquids).

The valves mentioned in this instruction manual are not classified as safety valves.

The exact design is customized and must therefore be taken from the device's technical information.

3.1 Intended use

Ambient pressure:	0.8 to 1.1 bar
Max inlet pressure	
counter pressure:	Depending on design, according to data sheet
Ambient temperature:	Within the temperature limits specified in the data sheet With option /Ex: -20 °C to +40 °C
Medium temperature:	According to sealing material, see data sheet PTFE with option /Ex: -20 bis 180 °C (T6...T4) Viton with option /Ex: -20 bis 130 °C (T6...T5)
Degree of protection:	Standard version IP40, with weather protection IP54 other versions according to the data sheet

Limitations of the medium: No combustible gases in an explosive concentration. Exception, ATEX-certified devices according to:

- II 2 G Ex h IIB T6 Gb
- II 3 G Ex h IIC T6 Gc
- II 2 D Ex h IIIC T6 Db
- II 3 D Ex h IIIC T6 Dc

Environmental influences (e.g. direct sunlight) that cause the housing temperature to rise to unacceptable levels must be avoided.

Other external radiation (electromagnetic, ionizing radiation, ultrasound): none (if such radiation is present in the area used, the hazard must be taken into account and assessed by the user.) Keep the devices free of dust (dust thickness less than 1 mm).

3.2 Assembly work on the pressure regulator

The user and operator must take measures for mounting, disassembly, and maintenance work of and on the pressure regulator in areas with explosive atmospheres to prevent these operations from creating sources of ignition.

4 Safety provisions

Any work on or with the device may be performed only by qualified personnel who are familiar with the applicable regulations on operating pressure regulators and/or pressure containers.

If disassembling safety equipment is required for installation, it must be assembled and inspected immediately once the work has concluded.

Do not exceed the operating pressure. It is specified on the nameplate of each device.

When using the device, the provisions regarding the filling material must be followed.

Natural regulations regarding usage and test intervals must be followed.

5 Material resistance

Since the operator chose the material, the supplier cannot provide any guarantees regarding material resistance. It is the operator's responsibility to ensure that the material of the devices, including seals and add-on components (e.g., pressure gauges, pilot regulator, etc.) are adequately resistant against the medium.

6 Startup

6.1 Before installation

Before installation, perform a visual inspection on the device to determine any transport damage. The device's performance data must be reviewed (max. inlet pressure, secondary pressure, etc.).

The values noted on the nameplate are the values measured in our functional test.

The resistance of the materials has to be checked (see the corresponding chapter of this operating manual).

Newly installed pipelines must be fully rinsed clean to eliminate mechanical residues. It must be ensured that the pressure regulator is connected at the local equipotential bonding, either through an adequate and permanent connection to metallic pipes or via a direct connection to local equipotential bonding.

6.2 Installation

Always install the medium pressure regulator as close as possible to the process tank or consumer within non-turbulent flow.

Be mindful of the flow direction! (Marked on the housing with an arrow). Otherwise, there is the risk of damaging the pressure regulator.

6.3 Assembly position and installation

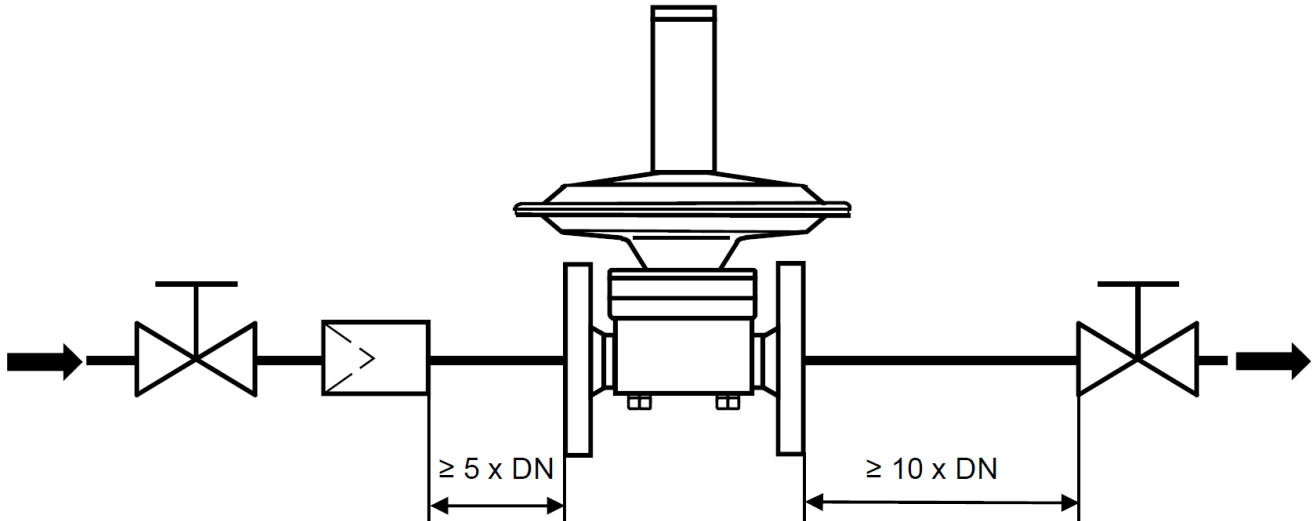
The Installation position is freely selectable. Sealed devices are set to the desired pressure according to the ordered position. If the devices are configured by the user, then this also must take place in the subsequent installation position.

The configuration can be sealed using the lateral hole in the setting screw. Factory-sealed devices are set to the specified pressure.

Assembly must be performed on both sides (p_1 , primary side and p_2 , secondary side) within non-turbulent flow. To that end:

- Straight inlet piping of 5 x DN on the primary side and
- Straight outlet piping of 10 x DN on the secondary side is recommended

Furthermore, it is recommended that you install one shut-off valve each before and after the pressure regulator to simplify any maintenance work. Furthermore, a suitable filter must be installed before the pressure regulator in case of dirty gases or if there is a hazard of solid particles.



Avoid pressure shocks after assembly and always open shut-off valves slowly!

6.4 Configuring the setpoint

Always open the valves in lines before or after the pressure regulator slowly and avoid pressure shocks!

Spring-loaded model PPR/F:

Slowly open the valve or ball valve before or after the pressure regulator. Set the desired pressure by turning the setting screw (8 mm hexagon socket).

Warning! Observe the maximum values on the nameplate.

Clockwise rotation = Decreasing primary pressure p_1

Counterclockwise rotation = Increasing primary pressure p_1

Dome-loaded model with pilot regulator PPR/Ds:

The dome pressure is set to the desired value using a pilot regulator via a handwheel or a setting screw (depending on the design). Maximum permissible dome pressure according to nameplate/pressure level of the process connections

Dome-loaded model without pilot regulator PPR/D:

Apply pressure to the dome via the G1/8". Open the needle valve in the lateral surface 1 ... 2 rotations (right-hand thread). Upon reaching the desired dome pressure, carefully close the needle valve; the sealing surfaces are metallically sealing. The gas connection to the dome can subsequently be removed again.

Reflux blocking valve PRR:

Differential pressure / locking pressure are not adjustable.

7 Maintenance and repairs

The previously mentioned pressure regulators work without auxiliary energy and are maintenance-free. Additional queries may be processed only by specifying the serial number.

The serial number must be specified for spare part orders.

Device returns for repair or modification can be accepted only if they have been cleaned and have a completed RMA according to the applicable regulations. In the case of hazardous media, we recommend returning the device disassembled and cleaned.

7.1 Inspection intervals

An annual review of the function or maintenance is recommended depending on the characteristics of the medium and the respective operating states. Depending on these results, the testing/maintenance interval can be shortened or extended by the operator/user.

8 Code: PPR 15

PPR/D	D: G $\frac{1}{4}$ " (1/4" BSP)		Funktion	Domgesteuert	Dome loaded	Dôme	0.5 - 40 bar ²⁾
PPR/Ds	Ds: G $\frac{1}{4}$ " (1/4" BSP)		Function	Dom-Fremdsteuern.	Dome / Remote	Pilotage/indirecte	0.5 - 40 bar ²⁾
PPR/F			Fonction	Federgesteuert	Spring loaded	Dôme à ressort	1.0 - 10 bar
15	DN15, PN40	Grösse	Einbaulänge	Einbaulänge	Lay length	Encombremment	160 mm
15	1/2", 150 lbs	Size	Einbaulänge	Einbaulänge	Lay length	Encombremment	179 mm
15	1/2", 300 lbs	Dimension	Einbaulänge	Einbaulänge	Lay length	Encombremment	187 mm
15	G $\frac{1}{2}$ " (1/2" BSP)		Einbaulänge	Einbaulänge	Lay length	Encombremment	152 mm
15	1/2" NPT		Einbaulänge	Einbaulänge	Lay length	Encombremment	152 mm
15	TriClamp Ø 50.5		Einbaulänge	Einbaulänge	Lay length	Encombremment	141 mm
S		Material	Edelstahl	SST	INOX	1.4404	
H		Material	Hastelloy	Hastelloy	Hastelloy	C276 (2.4819)	
X		Matériaux	Sonder auf Anfrage	Special on request	Spécial nous consulter		
-FD	DN15, PN40	Anschluss	Flansch	Flange	Brides	DIN EN 1092-1, B1	
-FA1	1/2", 150 lbs	Connection	Flansch	Flange	Brides	ANSI	
-FA3	1/2", 300 lbs	Raccord	Flansch	Flange	Brides	ANSI	
-GD1	G $\frac{1}{2}$ " (1/2" BSP)		Gewinde	Thread	Fileté	DIN / EN	
-GN1	1/2" NPT		Gewinde	Thread	Fileté	DIN / EN	
-TCB	TriClamp		TriClamp	Ø 50.5 mm	DIN 32676, B	ANSI / EN	
-XX			Sonder auf Anfrage	Special on request	Spécial nous consulter		
-H		Membrane	Hastelloy	-20/180 °C			
-P		Diaphragm	PTFE	-20/180 °C			
-V		Membrane	Viton®	-20/130 °C			
30		Federbereich	0.3 - 3 bar	@ p ₂ = Atmosph.			
100		Spring range	0.5 - 10 bar	@ p ₂ = Atmosph.			
-		Plage de réglage	0.5 - 40.0 bar ²⁾	@ p ₂ = Atmosph.	(...D/Ds) Dom	Dome	Dôme
11		Sitz	Kv = 1.5 / 11 mm				
		Seat					
		Siège					
Optionen, /Options, /Options							
/S1¹⁾	Manometerstutzen	G $\frac{1}{4}$ " (1/4" BSP, p ₁)					
	Pressure gauge nozzle	G $\frac{1}{4}$ " (1/4" BSP, p ₁)					
	Raccord de manomètre	G $\frac{1}{4}$ " (1/4" BSP, p ₁)					
/S2¹⁾	Manometerstutzen	G $\frac{1}{4}$ " (1/4" BSP, p ₂)					
	Pressure gauge nozzle	G $\frac{1}{4}$ " (1/4" BSP, p ₂)					
	Raccord de manomètre	G $\frac{1}{4}$ " (1/4" BSP, p ₂)					
/Sd¹⁾	Manometerstutzen auf Dom	G $\frac{1}{4}$ " (1/4" BSP)					
	Pressure gauge nozzle on dome	G $\frac{1}{4}$ " (1/4" BSP)					
	Raccord de manomètre sur la dôme	G $\frac{1}{4}$ " (1/4" BSP)					
/Sp	Eingestellt/plombiert	Adjusted and sealed	Ajusté et plombé				
/C2.2	Werksabnahmezeugnis	EN 10204-2.2					
	Works acceptance certificate	EN 10204-2.2					
	Certificat de réception en usine	EN 10204-2.2					
/C3.1	Werkstoffprüfzeugnis	EN 10204-3.1					
	Material certificate	EN 10204-3.1					
	Certificat materiel	EN 10204-3.1					
/Cp	Einstellprotokoll	Test protocol	Protocole de réglage				
/Ex	ATEX Zulassung	ATEX approval	Certificat ATEX				
/FDA	FDA-Bescheinigung	FDA approval	Certificat FDA				
/Ff	Öl-Fettfrei	Certificate degreasing	Sans Huile ni Graisse				
Beispiel, Example, Exemple							
PPR/F	15	S	-FD	-P	100	11	/S2/Sp/C3.1/Ex

Hinweise / Hints / Remarque

- ¹⁾ Manometer passend zum Druckbereich optional verfügbar
 Pressure gauge, suitable for the pressure range, optionally available
 En option, possibilité d'un manomètre avec la plage de pression correspondante.
- ²⁾ Unter allen Betriebsbedingungen darf der Differenzdruck über der Membran 10 bar nicht überschreiten
 Under all operating conditions, the differential pressure across the diaphragm must not exceed 10 bar
 Une différence de pression max. de 10 bar sur la membrane est autorisée

9 Code: PPR 25

PPR/D	D: G $\frac{1}{4}$ " (1/4" BSP)		Funktion	Domgesteuert	Dome loaded	Dôme	0.5 - 40 bar ²⁾		
PPR/Ds	Ds: G $\frac{1}{4}$ " (1/4" BSP)		Function	Dom-Fremdsteuer.	Dome / Remote	Pilotage/indirecte	0.5 - 40 bar ²⁾		
PPR/F			Fonction	Federgesteuert	Spring loaded	Dôme à ressort	1.0 - 10 bar		
25	DN25, PN40		Grösse	Einbaulänge	Lay length	Encombrement	200 mm		
25	1", 150 lbs		Size	Einbaulänge	Lay length	Encombrement	231 mm		
25	1", 300 lbs		Dimension	Einbaulänge	Lay length	Encombrement	244 mm		
25	G1 (1" BSP)			Einbaulänge	Lay length	Encombrement	206 mm		
25	1" NPT			Einbaulänge	Lay length	Encombrement	206 mm		
25	TriClamp Ø 50.5			Einbaulänge	Lay length	Encombrement	177 mm		
S			Material	Edelstahl	SST	INOX	1.4404		
H			Material	Hastelloy	Hastelloy	Hastelloy	C276 (2.4819)		
X			Matériaux	Sonder auf Anfrage	Special on request	Spécial nous consulter			
-FD	DN25, PN40		Anschluss	Flansch	Flange	Brides	DIN EN 1092-1, B1		
-FA1	1", 150 lbs		Connection	Flansch	Flange	Brides	ANSI		
-FX3	1", 300 lbs		Raccord	Flansch	Flange	Brides	ANSI		
-GD3	G1, (1" BSP)			Gewinde	Thread	Fileté	DIN / EN		
-GN3	1" NPT			Gewinde	Thread	Fileté	ANSI		
-TCB	TriClamp			TriClamp	Ø 50.5 mm	DIN 32676, B	DIN / EN		
-XX				Sonder auf Anfrage	Special on request	Spécial nous consulter			
-H			Membrane	Hastelloy	-20/180 °C				
-P			Diaphragm	PTFE	-20/180 °C				
-V			Membrane	Viton®	-20/130 °C				
30			Federbereich	0.3 - 3 bar	@ p ₂ = Atmosph.				
100			Spring range	0.5 - 10 bar	@ p ₂ = Atmosph.				
-			Plage de réglage	0.5 - 40.0 bar ²⁾	@ p ₂ = Atmosph.	(...D/Ds) Dom	Dome	Dôme	
17			Sitz	Kv = 4.8 / 17 mm					
			Seat						
			Siège						
Optionen, /Options, /Options									
/S1 ¹⁾	Manometerstutzen					G $\frac{1}{4}$ " (1/4" BSP, p ₁)			
	Pressure gauge nozzle					G $\frac{1}{4}$ " (1/4" BSP, p ₁)			
	Raccord de manomètre					G $\frac{1}{4}$ " (1/4" BSP, p ₁)			
/S2 ¹⁾	Manometerstutzen					G $\frac{1}{4}$ " (1/4" BSP, p ₂)			
	Pressure gauge nozzle					G $\frac{1}{4}$ " (1/4" BSP, p ₂)			
	Raccord de manomètre					G $\frac{1}{4}$ " (1/4" BSP, p ₂)			
/Sd ¹⁾	Manometerstutzen auf Dom					G $\frac{1}{4}$ " (1/4" BSP)			
	Pressure gauge nozzle on dome					G $\frac{1}{4}$ " (1/4" BSP)			
	Raccord de manomètre sur la dôme					G $\frac{1}{4}$ " (1/4" BSP)			
/Sp	Eingestellt/plombiert	Adjusted and sealed				Ajusté et plombé			
/C2.2	Werksabnahmezeugnis					EN 10204-2.2			
	Works acceptance certificate					EN 10204-2.2			
	Certificat de réception en usine					EN 10204-2.2			
/C3.1	Werkstoffprüfzeugnis					EN 10204-3.1			
	Material certificate					EN 10204-3.1			
	Certificat materiel					EN 10204-3.1			
/Cp	Einstellprotokoll	Test protocol				Protocole de réglage	{ II 2 G Ex h IIB T6 Gb II 3 G Ex h IIC T6 Gc II 2 D Ex h IIIC T6 Db II 3 D Ex h IIIC T6 Dc		
/Ex	ATEX Zulassung	ATEX approval				Certificat ATEX			
/FDA	FDA-Bescheinigung	FDA approval				Certificat FDA			
/Ff	Öl-Fettfrei	Certificate degreasing				Sans Huile ni Graisse			
Beispiel, Example, Exemple									
PPR/F	25	S	-FD	-P	100	17	/S2/Sp/C3.1/Ex		

Hinweise / Hints / Remarque

- ¹⁾ Manometer passend zum Druckbereich optional verfügbar
 Pressure gauge, suitable for the pressure range, optionally available
 En option, possibilité d'un manomètre avec la plage de pression correspondante.
- ²⁾ Unter allen Betriebsbedingungen darf der Differenzdruck über der Membran 10 bar nicht überschreiten
 Under all operating conditions, the differential pressure across the diaphragm must not exceed 10 bar
 Une différence de pression max. de 10 bar sur la membrane est autorisée

10 Code: PRR 15

PRR		Funktion Function Fonction	Rückfluss-Sperventil Reflux blocking valve Soupape anti-reflux	Druckverlust: Pressure drop: Perte de pression	0.1 bis 0.2 bar 0.1 to 0.2 bar 0.1 à 0.2 bar	
15	DN15, PN40	Grösse Size Dimension	Einbaulänge	Lay length	Encombremment	160 mm
15	½", 150 lbs		Einbaulänge	Lay length	Encombremment	179 mm
15	½", 300 lbs		Einbaulänge	Lay length	Encombremment	187 mm
15	G½ (½" BSP)		Einbaulänge	Lay length	Encombremment	152 mm
15	½" NPT		Einbaulänge	Lay length	Encombremment	152 mm
15	TriClamp Ø 50.5		Einbaulänge	Lay length	Encombremment	141 mm
S		Material Material Matériaux	Edelstahl	SST	INOX	1.4404
X			Sonder auf Anfrage	Special on request	Spécial nous consulter	
-FD	DN15, PN40	Anschluss Connection Raccord	Flansch	Flange	Brides	DIN EN 1092-1, B1
-FA1	½", 150 lbs		Flansch	Flange	Brides	ANSI
-FA3	½", 300 lbs		Flansch	Flange	Brides	ANSI
-GD1	G½ (½" BSP)		Gewinde	Thread	Fileté	DIN / EN
-GN1	½" NPT		Gewinde	Thread	Fileté	ANSI
-TCB	TriClamp		TriClamp	Ø 50.5 mm	DIN 32676, B	DIN / EN
-XX			Sonder auf Anfrage	Special on request	Spécial nous consulter	
-H		Membrane Diaphragm Membrane	Hastelloy	-20/180 °C		
-P			PTFE	-20/180 °C		
-V			Viton®	-20/130 °C		
	11	Sitz Seat Siège	Kv = 1.1 / 11 mm			
Optionen, /Options, /Options						
		/Ta	Testanschluss	2x G¼ (¼" BSP)		
			Test connections	2x G¼ (¼" BSP)		
			Raccord pour test	2x G¼ (¼" BSP)		
		/C2.2	Werksabnahmezeugnis		EN 10204-2.2	
			Works acceptance certificate		EN 10204-2.2	
			Certificat de réception en usine		EN 10204-2.2	
		/C3.1	Werkstoffprüfzeugnis		EN 10204-3.1	
			Material certificate		EN 10204-3.1	
			Certificat matériel		EN 10204-3.1	
		/Cp	Einstellprotokoll	Test protocol	Protocole de réglage	II 2 G Ex h IIB T6 Gb II 3 G Ex h IIC T6 Gc II 2 D Ex h IIIC T6 Db II 3 D Ex h IIIC T6 Dc
		/Ex	ATEX Zulassung	ATEX approval	Certificat ATEX	
		/FDA	FDA-Bescheinigung	FDA approval	Certificat FDA	
		/Ff	Öl-Fettfrei	Certificate degreasing	Sans Huile ni Graisse	
Beispiel, Example, Exemple						
PRR	15	S	-FD	-P	11	/Ta/C3.1/Ex

11 Code: PRR 25

PRR			Funktion Function Fonction	Rückfluss-Sperrventil Reflux blocking valve Soupape anti-reflux	Druckverlust: Pressure drop: Perte de pression	0.1 bis 0.2 bar 0.1 to 0.2 bar 0.1 à 0.2 bar
	25	DN25, PN40	Grösse Size	Einbaulänge Lay length	Encombremet	200 mm
25	1", 150 lbs		Einbaulänge Lay length	Encombremet		231 mm
25	1", 300 lbs		Einbaulänge Lay length	Encombremet		244 mm
25	G1 (1" BSP)		Einbaulänge Lay length	Encombremet		206 mm
25	1" NPT		Einbaulänge Lay length	Encombremet		206 mm
25	TriClamp Ø 50.5		Einbaulänge Lay length	Encombremet		177 mm
	S		Material Material	Edelstahl Sonder auf Anfrage	SST Special on request	INOX Spécial nous consulter
	X		Matériaux			1.4404
	-FD	DN25, PN40	Anschluss Connection	Flansch Flange	Brides	DIN EN 1092-1, B1
	-FA1	1", 150 lbs	Raccord	Flansch Flange	Brides	ANSI
	-FA3	1", 300 lbs		Flansch Flange	Brides	ANSI
	-GD3	G1, (1" BSP)		Gewinde Thread	Fileté	DIN / EN
	-GN3	1" NPT		Gewinde Thread	Fileté	ANSI
	-TCB	TriClamp		TriClamp Ø 50.5 mm	DIN 32676, B	DIN / EN
	-XX			Sonder auf Anfrage Special on request	Spécial nous consulter	
	-H		Membrane Diaphragm	Hastelloy	-20/180 °C	
	-P		Membrane	PTFE	-20/180 °C	
	-V		Membrane	Viton®	-20/130 °C	
		17	Sitz Seat Siège	Kv = 4.5 / 17 mm		
			Optionen, /Options, /Options			
			/Ta	Testanschluss Test connections Raccord pour test	2x G¼ (¼" BSP) 2x G¼ (¼" BSP) 2x G¼ (¼" BSP)	
			/C2.2	Werksabnahmezeugnis Works acceptance certificate Certificat de réception en usine		EN 10204-2.2 EN 10204-2.2 EN 10204-2.2
			/C3.1	Werkstoffprüfzeugnis Material certificate Certificat materiel		EN 10204-3.1 EN 10204-3.1 EN 10204-3.1
			/Cp	Einstellprotokoll Test protocol		Protocole de réglage
			/Ex	ATEX Zulassung ATEX approval		Certificat ATEX
			/FDA	FDA-Bescheinigung FDA approval		Certificat FDA
			/Ff	Öl-Fettfrei Certificate degreasing		Sans Huile ni Graisse
Beispiel, Example, Exemple						
PRR	25	S	-FD	-P	17	/Ta/C3.1/Ex