NORMACONNECT® – Pipe Connections

NORMACONNECT® V
Profile clamps

The V profile clamps are reliable and time-effective connection elements for industrial use.

They are made to customer requirements and can be supplied with various profiles, band widths and closure types.

Short description of technical features

1. Coverband = optimal distribution of clamping forces
2. Closure
3. 3 profile segments = ease of assembly

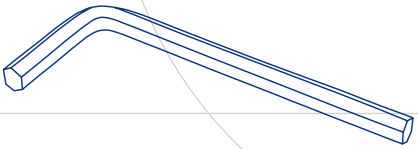
NORMACONNECT® V
Profile clamp with coverband

NORMACONNECT® – Pipe Connections

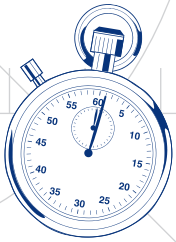
Product Advantages

All NORMACONNECT® V profile clamps offer a variety of benefits such as:

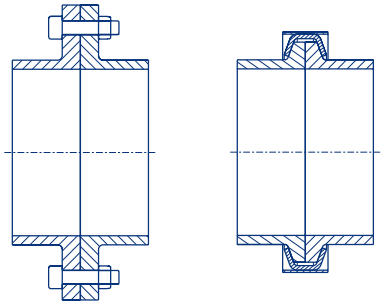
• Easy handling
Profile clamps are easy to handle and can be assembled with conventional tooling.



• Quick assembly
Profile clamps are quick to assemble saving time and money. With a single closure design, only one bolt has to be tightened to produce a secure joint.



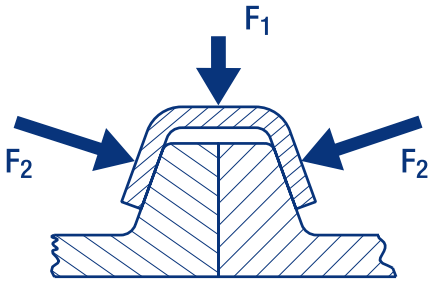
• Compact design
In contrast to conventional flanges, profile clamps require only minimal space and can therefore be used in critical fitting situations.



• Light weight
Compared to flanges, profile clamps are extremely lightweight. This helps to reduce the total weight of the system.

Product Function

The profile clamp works on the principle of the inclined plane: when the closure is tightened, a circumferential force F_1 is exerted on the profile segments. By means of the profile, the two flange parts are pressed together (see drawing opposite). The exerted circumferential force is converted into a considerably higher axial force F_2.

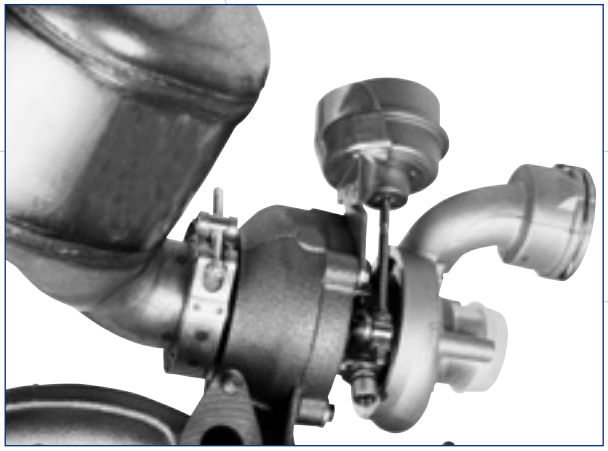


NORMACONNECT® – Pipe Connections

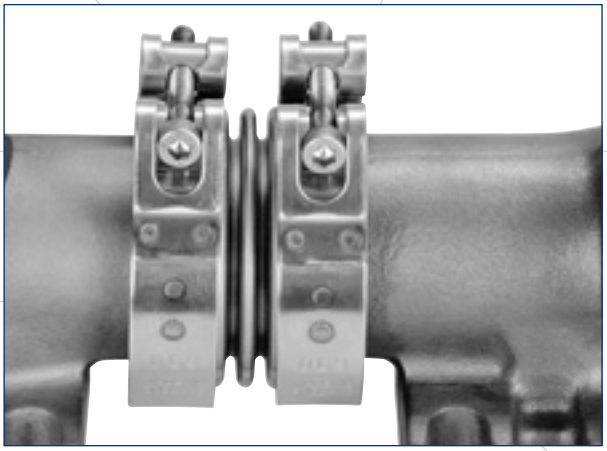
Applications

NORMACONNECT® V profile clamps are quick assembly connecting devices for flanges which offer an economical alternative to conventional bolted flange joints.

Examples for typical applications:



Automotive: Turbocharger/Catalyst connection



Automotive: Exhaust manifold

Industrial: Bulk handling vessel

Industrial: Bypass filter unit

NORMACONNECT® – Pipe Connections

Closure types

STC

With the STC type closure we offer a cost-effective alternative to conventional T-bolt closures.

Benefits:
- Low friction losses
- High strength precision machined components
- Manufactured from consistently high quality materials
- State-of-the-art automated manufacturing
- Highly competitively priced

QRC

The revolutionary QRC closure has significant advantages over conventional T-bolt closures.

Benefits:
- All benefits of the STC closure

Plus
- Quick assembly and release feature
- No loose closure parts
- Substantially reduced assembly time
- Screw secured in place whilst tightening

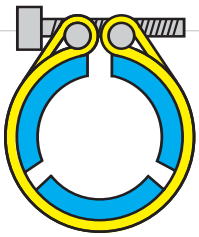
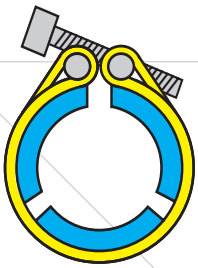
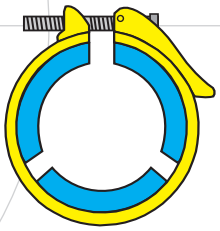
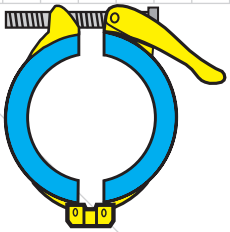
SVS

The SVS closure incorporates an over-centre lever which enables assembly by hand.

Benefits:
- Assembly without tool
- Ideal for frequent joint release

NORMACONNECT® – Pipe Connections

Product Range Summary

	STC	QRC	SVS
Single closure 3 profile segments			
Double closure 2 profile segments			

Materials

NORMACONNECT® V profile clamps are available in two material specifications:

Material Reference	Closure Types			Closure components	Profile segments / Coverband
	STC	QRC	SVS		
W2	•		•	Mild steel, zinc plated	Stainless steel
W4	•	•	•	Stainless steel	

Stainless steel material cross reference table

ISO	DIN	AISI	BS	AFNOR
X5 CrNi 18-10	1.4301	304	304 S 31	Z6 CN 18-09

Band & Closure Dimensions

NORMACONNECT® V profile clamps are manufactured with band and closure dimensions according to the profile selected.

Closure type	Cover band 1.0 x 20 mm	Cover band 1.5 x 25 mm
STC	Screw M 6 x 50	Screw M 8 x 70
QRC		
SVS	Screw M 6 x 70	Screw M 6 x 70

NORMACONNECT® – Pipe Connections

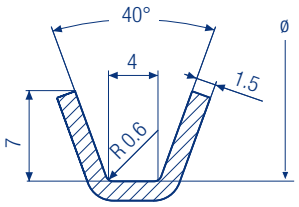
Profile Types

This page shows 12 profiles of the NORMACONNECT® V product range.
The internal profile diameter can be chosen in millimetre increments. All profiles are available up to ø 999 mm. Please refer to the individual profile sections below for the minimum diameter allowed.

Profile clamps are available in 20 mm or 25 mm coverband width. The individual profile sections below indicate which coverband width is suitable for each profile.

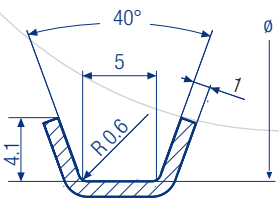
For special applications, please ask for further available profile types.

4.0 b ≥ ø 100



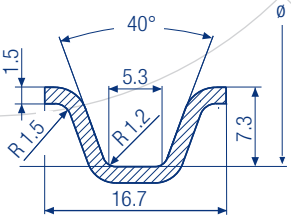
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

5.0 a ≥ ø 100



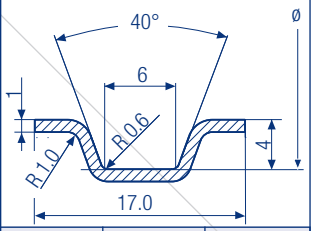
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

5.3 b ≥ ø 110



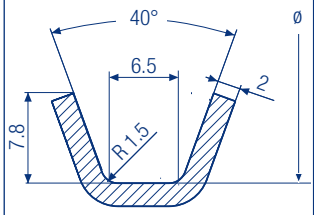
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

6.0 a ≥ ø 125



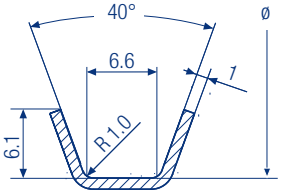
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

6.5 a ≥ ø 130



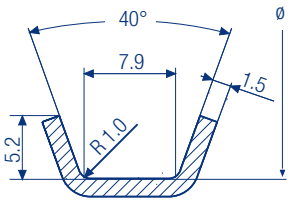
	20 mm	25 mm
STC		●
QRC		●
SVS		●

6.6 b ≥ ø 100



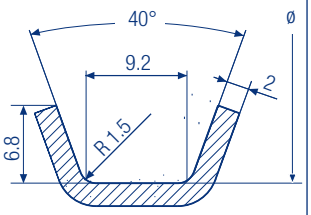
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

7.9 b ≥ ø 100



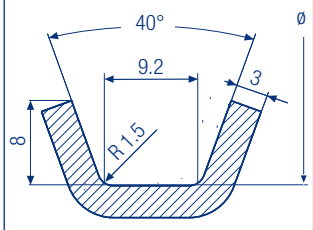
	20 mm	25 mm
STC	●	
QRC	●	
SVS	●	

9.2 a ≥ ø 100



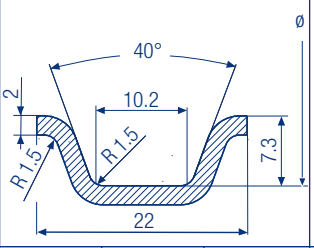
	20 mm	25 mm
STC		●
QRC		●
SVS		●

9.2 b ≥ ø 155



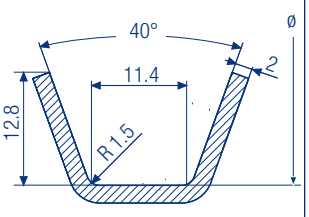
	20 mm	25 mm
STC		●
QRC		●
SVS		

10.2 a ≥ ø 130



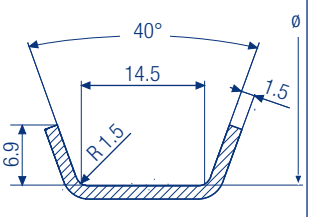
	20 mm	25 mm
STC		●
QRC		●
SVS	●	

11.4 b ≥ ø 180



	20 mm	25 mm
STC		●
QRC		●
SVS	●	

14.5 a ≥ ø 105

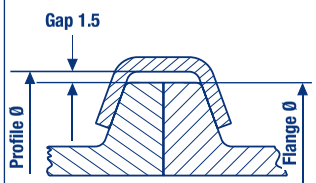
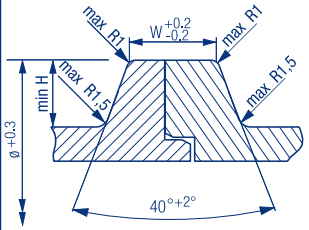
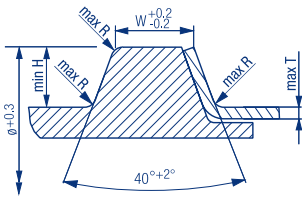
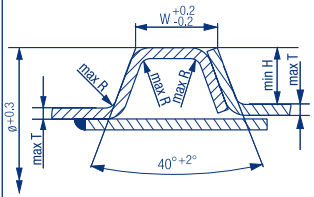
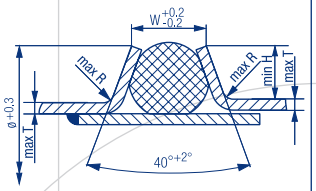


	20 mm	25 mm
STC		●
QRC		●
SVS	●	

NORMACONNECT® – Pipe Connections

Flange Design Suggestions

Typical flanges with required dimensions and tolerances suitable for use with our profiles are show below.
The use of a gasket or sealing can improve the leak rate of the joint.

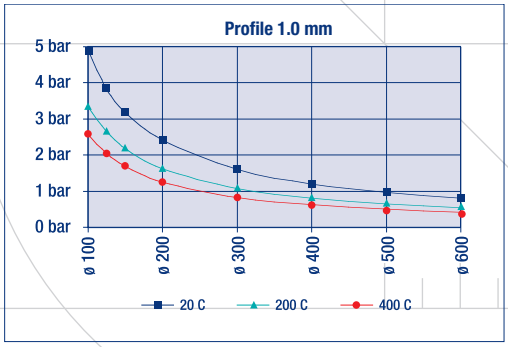
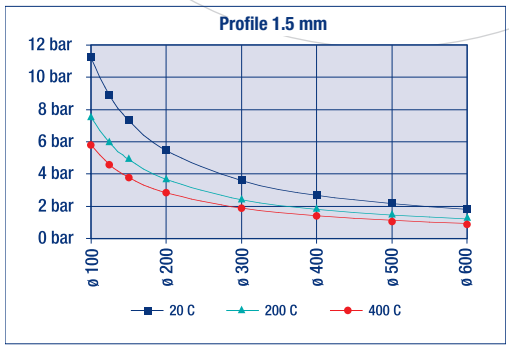
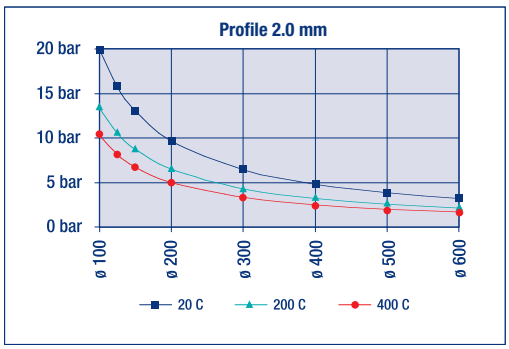
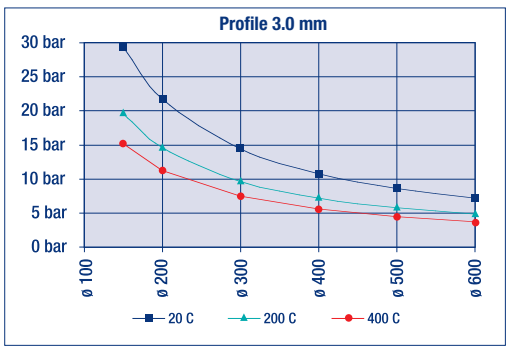
Internal Profile ø	Flange Design 1	Flange Design 2	Flange Design 3	Flange Design 4
 Profile ø = Flange ø + 2 x gap				

Profile-type	Profile-ø (mm)	W (mm)	H (mm)	W (mm)	H (mm)	R (mm)	T (mm)	W (mm)	H (mm)	R (mm)	T (mm)	W (mm)	H (mm)	R (mm)	T (mm)
4.0b	≥ 100	5.1	7.5	5.1	8	2	2	5.1	7.5	1	1	Not recommended			
5.0a	≥ 100	6.1	4.6	6.1	4.6	1.5	1.5	6.1	4.6	1	1	6.1	4.6	1.5	1.5
5.3b	≥ 110	6.4	7.3	6.4	7.8	2	2	6.4	7.3	1.5	1.5	6.4	7.8	2	2
6.0a	≥ 125	7.1	4	7.1	4	1.5	1.5	Not recommended				7.1	4	1.5	1.5
6.5a	≥ 130	7.6	8.3	7.6	8.8	2	2	7.6	8.3	1.5	1.5	7.6	8.8	2	2
6.6b	≥ 100	7.7	6.6	7.7	6.6	1.5	1.5	7.7	6.6	1.5	1.5	7.7	6.6	1.5	1.5
7.9b	≥ 100	9	5.7	9	6.2	2	2	9	5.7	1.5	1.5	9	6.2	2	2
9.2a	≥ 100	10.3	7.3	10.3	7.8	2	2	10.3	7.8	2	2	10.3	7.8	2	2
9.2b	≥ 155	10.3	8.5	10.3	9	2	2	Not recommended				Not recommended			
10.2a	≥ 130	11.3	7.3	11.3	7.8	2	2	11.3	7.8	2	2	11.3	7.8	2	2
11.4b	≥ 180	12.5	13.3	12.5	13.8	2	2	12.5	13.8	2	2	12.5	13.8	2	2
14.5a	≥ 105	15.6	7.4	15.6	7.9	2	2	15.6	7.9	2	2	Not recommended			

Abbreviations: W = Total Flange Width H = Total Flange Height R = Flange Radius T = Flange Thickness

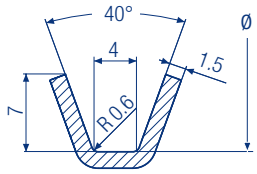
NORMACONNECT® – Pipe Connections

Technical Guide

Profile Type	Profile ø (mm)	Perfomance (for stainless steel only)	Technical Information
5.0 a 6.0 a 6.6 b	≥ 100 ≥ 125 ≥ 100		1. Determine the **operating or test pressure** for your application. 2. Determine the **max. operating temperature,** the profile clamp has to withstand. (Please note that the profile clamps in this brochure are designed for a maximum operating temperature of 400 °C). 3. Calculate the required inside diameter of the profile using the formula: outer flange diameter **+ 3 mm** 4. Use the diagrams on the left side to check whether the thickness of profile you have chosen is sufficient: (Please note that the result only gives a first approximated value for static pressure in ideal operating conditions). It can be influenced by further factors, such as • seal shape and material • roughness of the flange surface • operating temperatures • bending loads • pressure peaks / vibration • required operating safety factors It may be necessary to increase the thickness of the profile. The SVS closure is recommended for low-pressure (e. g. vacuum) applications only. 5. For screw tightening torque for the different closure types as well as screw sizes, please see tables below. 5.1. Recommended tightening torque STC & QRC closures Band width / Screw size / Tightening torque: 20 mm / M 6 / 6 Nm; 25 mm / M 8 / 12 Nm 5.2. Closure for SVS Screw size / Closure force: M 6 / ≈ 80 Nm
4.0 b 5.3 b 7.9 b 14.5 a	≥ 100 ≥ 110 ≥ 100 ≥ 105		
6.5 a 9.2 a 10.2 a 11.4 b	≥ 130 ≥ 100 ≥ 130 ≥ 180		How to use the diagrams: • Operation pressure: 4 bar (static) • Temperature: 20 ° C • Profile type 4.0b • Profile thickness: 1.5 mm • Flange diameter: ø 197 mm • Internal profile diameter: ø 200 Max. allowable pressure at 20 °C: • 5,4 bar > 4 bar ‹o.k.
9.2 b	≥ 155		

NORMACONNECT® – Pipe Connections

Order Information

1. Select your profile clamp using the tables.	2. Take down the appropriate 8 digit order code.	3. Calculate the required internal diameter: Outer flange diameter + 3 mm gap	4. Add the calculated diameter to the order code.
Example:	**Order Code:**	**Internal Profile Diameter:**	**Completed Order Code:**
 Profile type: 4.0 b Material: W4 Closure: QRC	0615 2043 ...	e.g. 100 mm + 3 mm = 103 mm	0615 2043 **103**

Order Codes

Single closure Design • 3 segments • Coverband • Profile inside ø ≤ 300 mm

Profile Type	Min. Profile ø (mm)	W2			W4		
		STC	QRC	SVS	STC	QRC	SVS
4.0b	≥ 100	0611 1043 …	–	0607 1043 …	0611 2043 …	0615 2043 …	0607 2043 …
5.0a	≥ 100	0611 1032 …	–	0607 1032 …	0611 2032 …	0615 2032 …	0607 2032 …
5.3b	≥ 110	0611 1078 …	–	0607 1078 …	0611 2078 …	0615 2078 …	0607 2078 …
6.0a	≥ 125	0611 1004 …	–	0607 1004 …	0611 2004 …	0615 2004 …	0607 2004 …
6.5a	≥ 130	0611 3015 …	–	0607 1015 …	0611 4015 …	0615 4015 …	0607 2015 …
6.6b	≥ 100	0611 1031 …	–	0607 1031 …	0611 2031 …	0615 2031 …	0607 2031 …
7.9b	≥ 100	0611 1099 …	–	0607 1099 …	0611 2099 …	0615 2099 …	0607 2099 …
9.2a	≥ 100	0611 3009 …	–	0607 1009 …	0611 4009 …	0615 4009 …	0607 2009 …
9.2b	≥ 155	0611 3038 …	–	–	0611 4038 …	0615 4038 …	–
10.2a	≥ 130	0611 3081 …	–	0607 1081 …	0611 4081 …	0615 4081 …	0607 2081 …
11.4b	≥ 180	0611 3058 …	–	0607 1058 …	0611 4058 …	0615 4058 …	0607 2058 …
14.5a	≥ 105	0611 3028 …	–	0607 1028 …	0611 4028 …	0615 4028 …	0607 2028 …

NORMACONNECT® – Pipe Connections

Double Closure Design* • 2 segments • No coverband • Profile inside ø 200 – 999 mm

Profile Type	W2			W4		
	STC	QRC	SVS*	STC	QRC	SVS
4.0b	0609 1043 …	–	0605 1043 …	0609 2043 …	–	0605 2043 …
5.0a	0609 1032 …	–	0605 1032 …	0609 2032 …	–	0605 2032 …
5.3b	0609 1078 …	–	0605 1078 …	0609 2078 …	–	0605 2078 …
6.0a	0609 1004 …	–	0605 1004 …	0609 2004 …	–	0605 2004 …
6.5a	0609 3015 …	–	0605 1015 …	0609 4015 …	–	0605 2015 …
6.6b	0609 1031 …	–	0605 1031 …	0609 2031 …	–	0605 2031 …
7.9b	0609 1099 …	–	0605 1099 …	0609 2099 …	–	0605 2099 …
9.2a	0609 3009 …	–	0605 1009 …	0609 4009 …	–	0605 2009 …
9.2b	0609 3038 …	–	–	0609 4038 …	–	–
10.2a	0609 3081 …	–	0605 1081 …	0609 4081 …	–	0605 2081 …
11.4b	0609 3058 …	–	0605 1058 …	0609 4058 …	–	0605 2058 …
14.5a	0609 3028 …	–	0605 1028 …	0609 4028 …	–	0605 2028 …

* SVX design with 1 closure and hinge