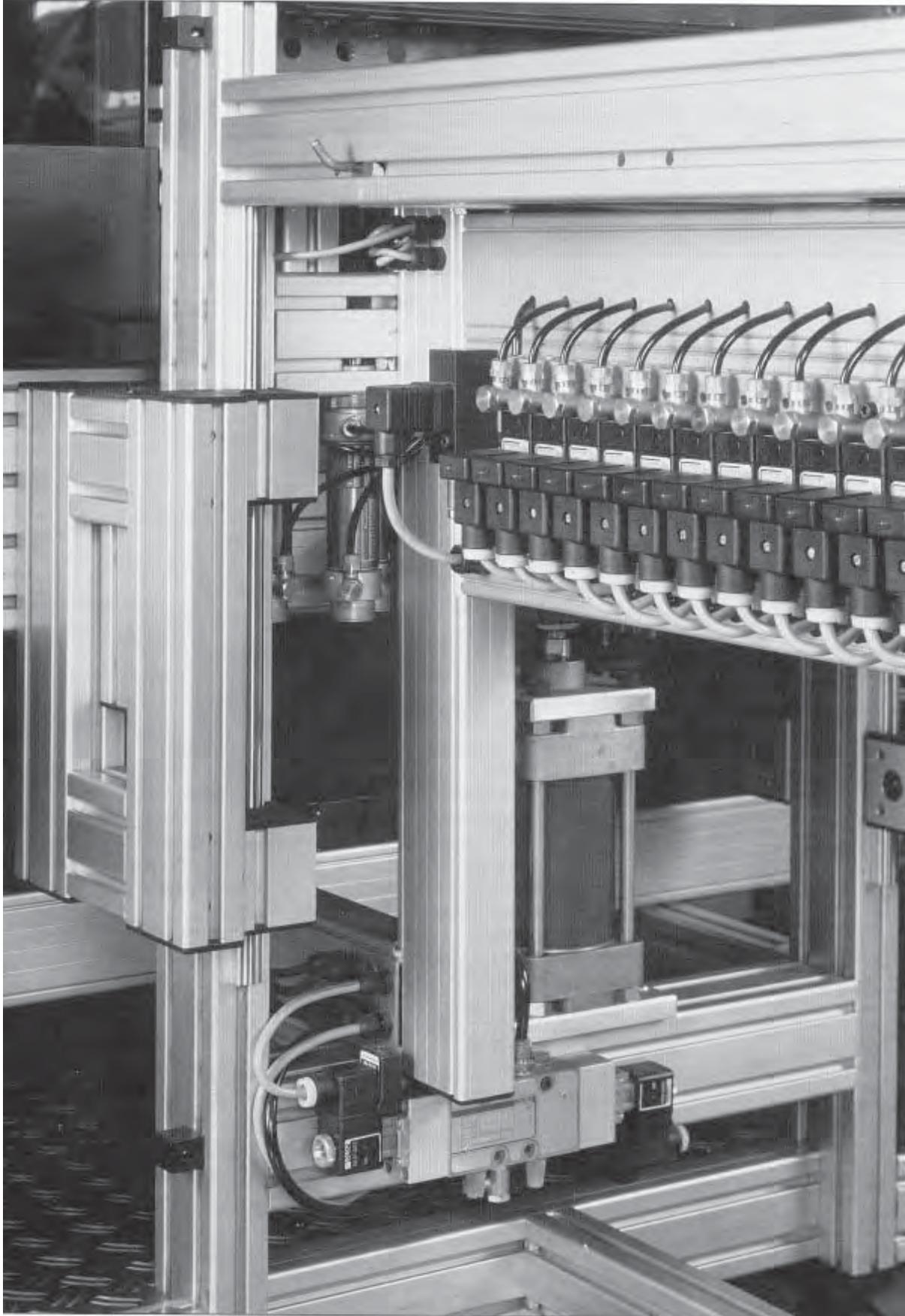


Pneumatic Applications

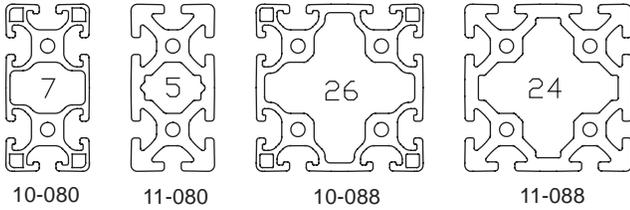


Pneumatic Control System with separate installation of cables and hoses with conduits 80x40.

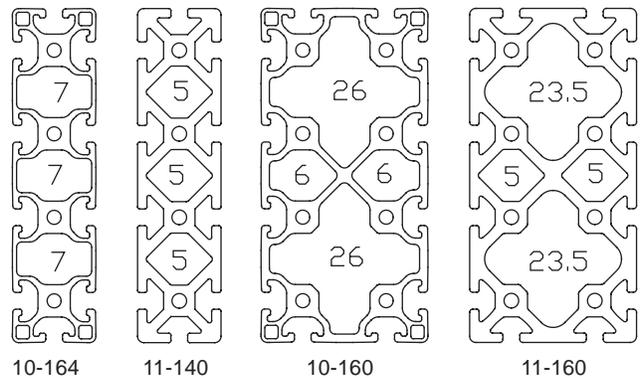
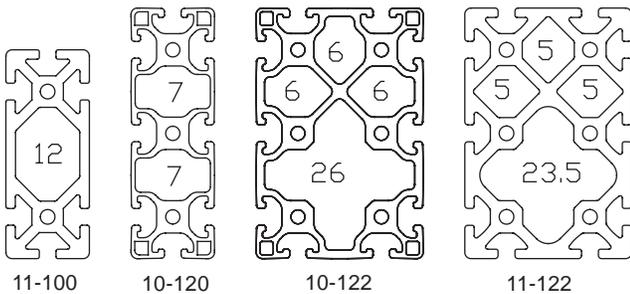
2

Pneumatic Profiles

Profiles can be used as support structure and compressed-air conduit at the same time. Connections may be made at any location. Single or multiple-chamber airways may be designed using the appropriate profile.



Cavity areas shown in cm² (1 cm² = 0.155 in²)
To calculate volume - multiply area by the profile length



2

Pneumatic Connecting Elements



- 1 Pneumatic Universal Fastening set for attaching 80x40 profile at a 90° angle on another 80x40 profile or larger
- 2 Pneumatic Butt-Fastening set for lengthening profiles
- 3 Pneumatic Joining Plate for fastening 80x80 profiles at a 90° angle on another 80x40 profile or larger

Assembly Guide

Pneumatic seals provide complete air tightness. Due to the seal nature, initial loosening may occur. Screws should, therefore, be retightened after 24 hours:
M8 screws to 25 Nm (18 ft-lbs)
M6 screws to 14 Nm (10 ft-lbs)

System Solutions



- 1 Lengthening 80x80 profiles with Pneumatic Butt-Fastening Set (20-012)
- 2 80x80 Profile with Pneumatic Connecting Plate (21-043) on end of profile
- 3 Attachment of 80x80 Standard and 80x80 at 90° with Pneumatic T-Joining Plate (21-044)
- 4 Attachment of 80x80 Standard and 80x40 profile at a 90° angle with Pneumatic Universal Fastening Sets (20-011)
- 5 80x40 Standard Profile with Pneumatic Connecting Plate (21-040) on 80mm side
- 6 80x80 Profile with lateral connection up to 3/8" drilled directly into profile

Special Solutions



1

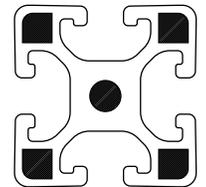


2

- 1 Pneumatic training station (courtesy of National Technology Transfer, Inc.)
- 2 Example of compressed airway using 40x40 Standard profile
- 3 Compressed air supply at the work bench using the 40x40 center bore
- 4 All cavities can be used for air supply (ex: 40x40 Standard profile shown)



3



4

Pressure Ratings and Leak Test

Procedures

Stage 1 - The samples were connected to a nitrogen cylinder. Pressure of 690 kPa (100 psi) was applied. The holding button head screws were checked and tightened to a torque of 13.6 Nm (10 ft-lbs). Pressure was increased in stages to 6900 kPa (1000 psi), always checking for leakage at the gaskets.

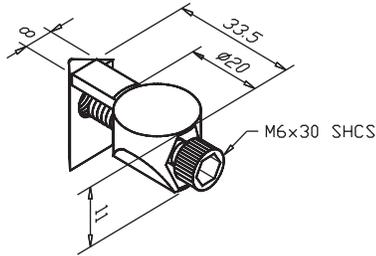
Stage 2 - Samples were filled with water and pressure applied in stages until the gaskets leaked or profiles burst.

Profile	Pressure Medium	Pressure kPA (psi)	Observation
80x40 Standard	Nitrogen	6,900 (1000)	No leakage
	Water	9,655 (1400)	Profile burst
80x80 Standard	Nitrogen	6,900 (1000)	No leakage
	Water	9,655 (1400)	Profile burst
80x40 Heavy	Nitrogen	6,900 (1000)	No leakage
	Water	27,580 (4000)	No leakage
80x80 Heavy	Nitrogen	6,900 (1000)	No leakage
	Water	10,345 (1500)	Gasket leaked

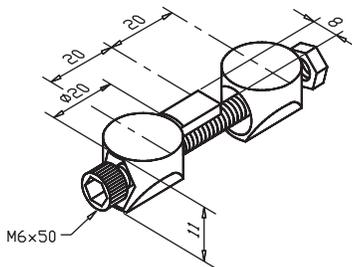
Recommendations

Safe pressure for: Standard Profiles 1725 kPa (250 psi)
 Heavy Profiles 3450 kPa (500 psi)

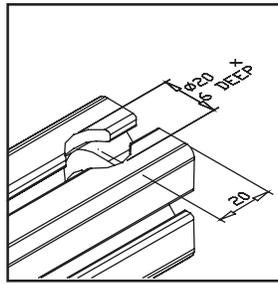
Pneumatic Fasteners



20-011



20-012



1



2

- 1 Processing similar to Universal Fastener (end mill recommended)
- 2 Location of fastening elements for 80x40 profile

Application

For 90° connection of 80x40 profile as compressed air piping to 80x40 or larger profiles. Butt-Fastening Set M6 used for connecting or lengthening aluminum profiles used as compressed air piping. Number of sets necessary relative to load and size of profile(s). Pneumatic Fasteners are located in the same way as regular Universal Fasteners.

Technical Data

Zn cast, galvanized

Fastening set 20-011 includes casting, M6x30 SHCS, M6 T-slot nut

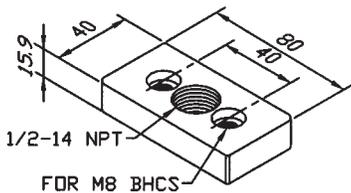
Fastening set 20-012 includes two castings, M6x50 SHCS, M6 hex nut

Description

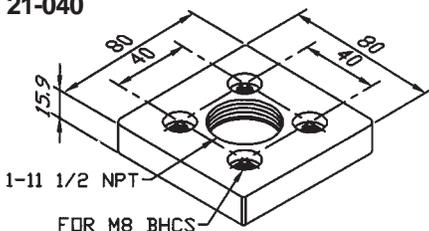
Pneumatic Universal Fastening Set
Butt-Fastening Set M6

Unit	Weight	Part #
1 set	36 g	20-011
1 set	45 g	20-012

Pneumatic Connecting Plates



21-040



21-043

Application

For sealing face of profiles to use as compressed airway. 80x40 plate can also be attached to the side of profile.

Technical Data

St, galvanized

Each plate includes one appropriate seal

Order all hardware separately

Profile end mount: M8x25 BHCS (24-125-8)

Profile side mount: M8x18 BHCS (24-118-8), M8 T-slot Nut (20-058)

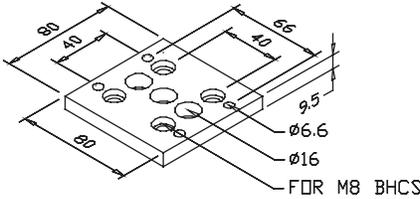
Description

Pneu. Conn. Plate 80x40, 1/2" NPT
Pneu. Conn. Plate 80x80, 1" NPT

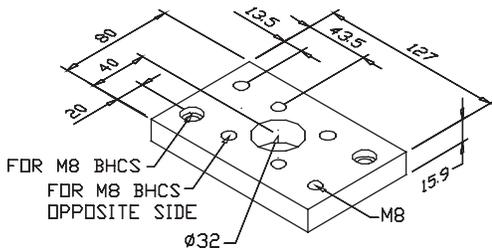
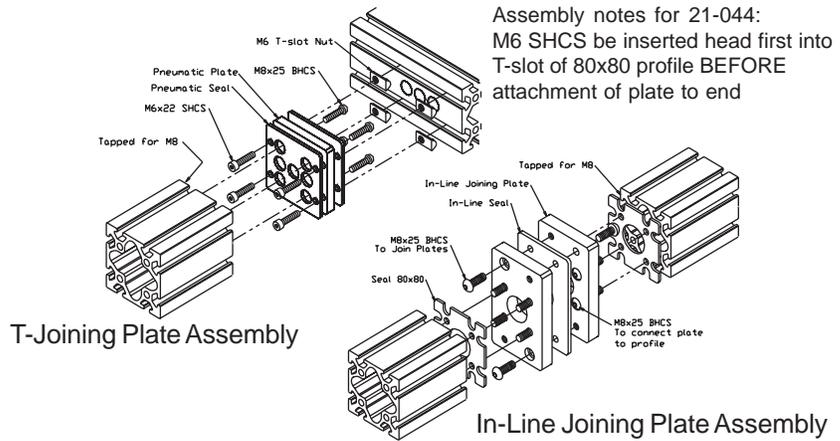
Unit	Weight	Part #
1 set	.30 kg	21-040
1 set	.64 kg	21-043

Pneumatic Joining Plates

Assembly notes for 21-044:
M6 SHCS be inserted head first into T-slot of 80x80 profile BEFORE attachment of plate to end



21-044



21-045

Application

T-Joining Plate is used for joining 80x80 profiles at 90° to 80x40 profiles and larger when used as compressed air conduit. In-Line Joining Plate is used for connecting 80x80 profiles face to face when used as compressed air conduit.

Technical Data

21-044: St, galvanized
Complete set includes one plate and two seals (21-144)
21-045: Al, clear anodized
Complete set consists of two plates, one seal (21-046) and two seals 80x80 (21-042)

Order all hardware separately

For 21-044: four M8x25 BHCS (24-125-8), four M6x22 SHCS and four M6 T-slot Nuts (20-056)

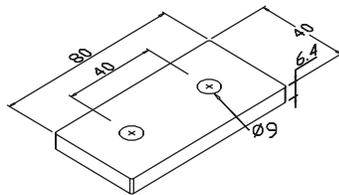
For 21-045: twelve M8x25 BHCS (24-125-8)

Description

Pneumatic T-Joining Plate
Pneumatic In-Line Joining Plate

Unit	Weight	Part #
1 set	.42 kg	21-044
1 set	1.09 kg	21-045

Blank Plates



21-164

Application

Used for closing 80x40 and 80x80 air channel.

Technical Data

Al, anodized
Each plate includes one appropriate seal

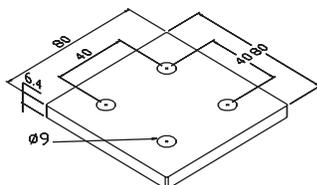
Order all hardware separately.

M8x25 BHCS (24-125-8)

Description

Blank Plate 80x40
Blank Plate 80x80

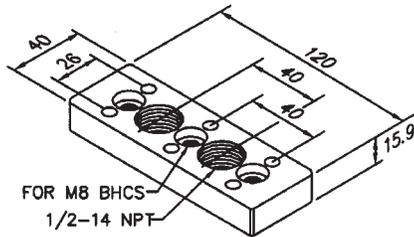
Unit	Weight	Part #
1 pc	0.1 kg	21-164
1 pc	0.2 kg	21-165



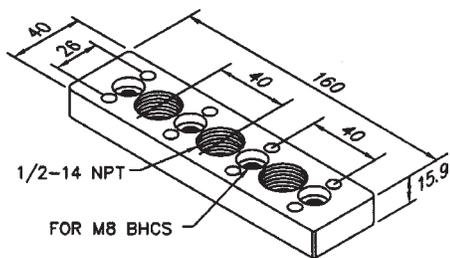
21-165

Pneumatic Joining/ Connecting Plates

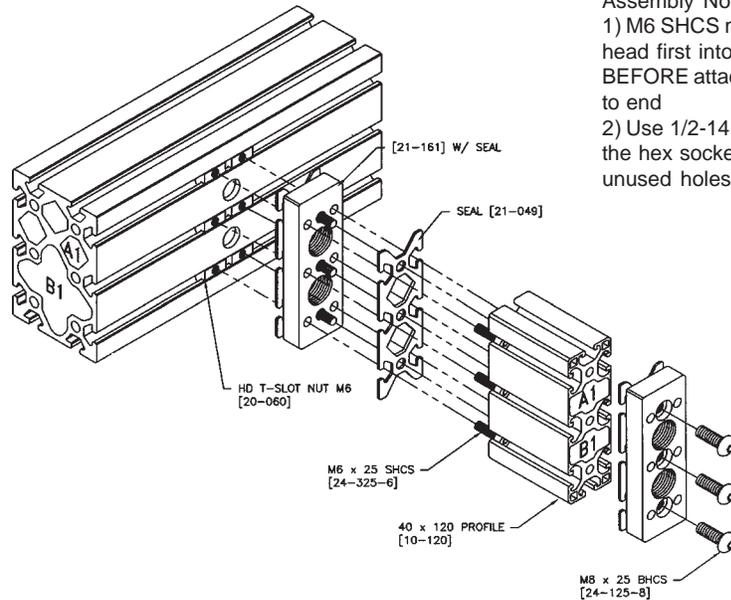
Assembly Notes:
1) M6 SHCS must be inserted head first into T-slot of profile BEFORE attachment of plate to end
2) Use 1/2-14 NPT plug with the hex socket to plug unused holes



21-161



21-163



Application

For sealing end face of appropriate profiles for use as compressed airway or for joining profiles at 90° or in line.

Technical Data

St, zinc plated
Each plate includes one appropriate seal

Order all hardware separately

Description

Pneu. Joining/Conn. Plate for 120x40
Pneu. Joining/Conn. Plate for 160x40

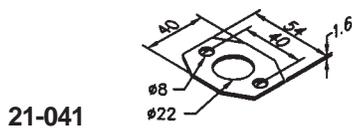
Unit

1 set
1 set

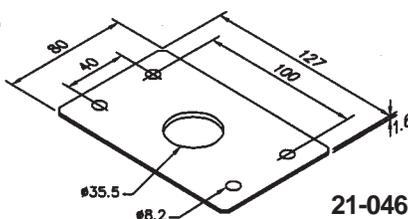
Part

21-161
21-163

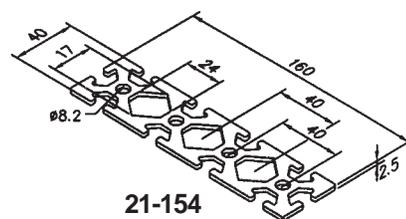
Pneumatic Seals



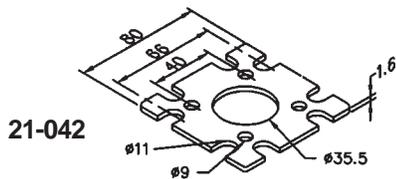
21-041



21-046



21-154



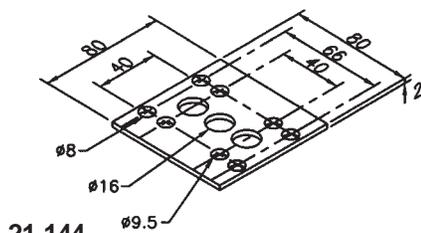
21-042

Application

Replacement seals for pneumatic connections. (Note: retighten screws after 24 hours)

Technical Data

Neoprene or buna, black



21-144

Description

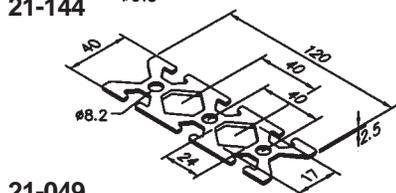
Seal 80x40
Seal 80x80
Seal 80x80, T-Joining Plate
Seal 120x40
Seal 80x80, In-Line Plate
Seal 160x40

Unit

1 pc
1 pc
1 pc
1 pc
1 pc
1 pc

Part

21-041
21-042
21-144
21-049
21-046
21-154



21-049