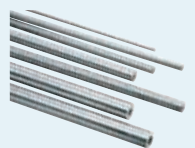
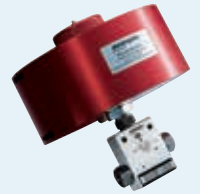


High Pressure Components and Systems



690 to 10'000 bar
10 kPSI to 150 kPSI



NOVA SWISS® high pressure division develop, produce and supply world-wide standardized high-pressure components for critical applications involving pressures ranging from 10kpsi to 150kpsi (690 to 10'000 bar).

As one of the leading suppliers of high-pressure components NOVA SWISS® supplies major companies in the oil and gas exploration and production, petrochemical, machine and industrial equipment building industries, in ultra-pure gas appli-

cations and in research and development. Our commitment is to the fulfillment of the ever-higher requirements on safety by serving our customers with dependable quality products.

Contents

Connections	4
Needle Valves	5
Air operated Valves	6
Double-Block and Bleed Valves	7
Options	8
Fittings	9
Glands, Collars, Plugs	10
Check Valves	11
Safety Heads, Bursting Discs	12
Filters, Adapters, Connectors, Coupling	13
Tubing	14
Nipples	15
Diaphragm Compressors	16
Diaphragm Compressors and Options	17
Hand Pumps and Hand Pump Systems	18
High Pressure Air driven	
Intensifier HPAP	19
Customized Components	20
Subsystems and Systems	21
Typical Applications	22

High functional Reliability in extreme Environments

Our products are based on state-of-the-art technology. Their distinguishing features are mature product development and design, high precision, made-to-fit connection geometries and ease of use. NOVA SWISS® high-pressure components have proven their service-worthiness under adverse environmental conditions and high physical strain.

High operating Reliability

NOVA SWISS® high-pressure components are designed and manufactured in compliance with the European machine directives (89/392/EEC). Our integrated management system according to ISO 9001 is your assurance of top quality, as well as user-friendly and safety-oriented designs.

Longevity of highly-stressed Products.

NOVA SWISS® high-pressure components are made of high-grade, corrosion-resistant materials. Material pairings are designed to suit individual application requirements.

The pressure retaining parts of valves, fittings and adapters which are rated up to 2,070 bar (30 kpsi) comply with standard NACE MR0175.

All pressures indicated in this brochure apply for maximum quasi-static load at room temperature.

Traceability Certification

All pressure retaining parts are manufactured and marked according to exactly specified manufacturing instructions. All of these parts are fully traceable, starting from the finished product and reaching all the way back to the raw material.

Broad Product Range

As a leading manufacturer of high-pressure components we offer a large selection of products for a diversity of applications.

High on-time Delivery Performance

Just-in-time delivery directly to customer's assembly lines is standard. We have adopted the modern Kanban manufacturing approach and maintain our own modern production and procurement logistics organization. The on-going measurement of our performance factors such as quality, delivery accuracy and customer satisfaction provides the customer the assurance that their high requirements will be met.

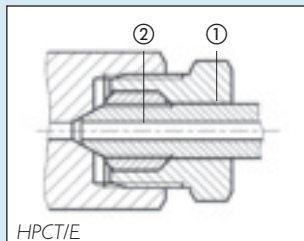
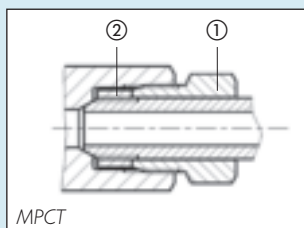
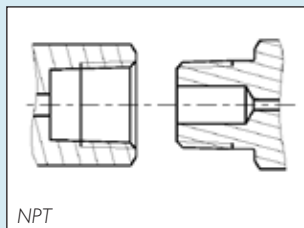
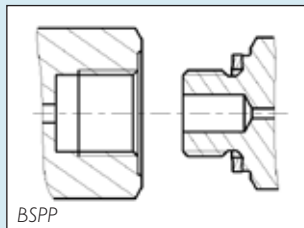
Cost Reduction is the Objective

NOVA SWISS® products are easy to install and designed to facilitate the maintenance at a later time. For this purpose we supply repair instructions with the respective safety information in multiple languages.

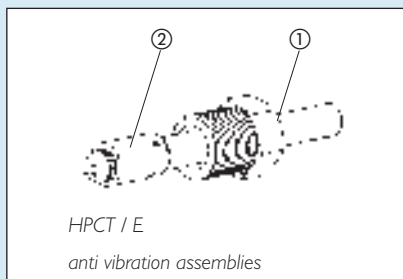
Accident Prevention is an integral Part of our Product Concept

NOVA SWISS® high-pressure components are the embodiment of a modern, ergonomic product design. The products are easy to install and to handle. In the development phase systematic risk analysis were performed and measures implemented for the purpose of excluding risks for the user as much as humanly possible. The safe and dependable assembly and operation of our components is enhanced by detailed operating manuals.

Connections



- ① Gland
- ② Collar
- ③ Collet
- ④ Gland nut



Connections

Low-pressure Components and Tubing

BSPP | NPT | max. 10'000 psi

The British Standard Parallel Pipe Thread is like the National Pipe Thread ideal suitable for low pressure applications and can be manufactured with common tools.

For any pressure above 10 kpsi we strongly recommend to use «coned and threaded» connections exclusively.

Medium-pressure Components and Tubing

MPCT | max. 20'000 psi

Medium-pressure connections (MPCT). This coned and threaded connection can be fitted and disconnected several times. The gland and the collar are arranged in line, thereby allowing minimum thickness of the components.

High-pressure Components and Tubing

HPCT: Imperial UNF thread

30'000 psi | 60'000 psi

E: Metric thread according to ISO

4'000 bar | 7'000 bar

High-pressure connections (HPCT). Coned and threaded connection for high pressures and repeated fitting/unfitting. The gland encloses the collar and reinforces it at the point of maximum load.

«E» high-pressure connections are of the same concept as the «HPCT» high-pressure connections. Only the threads of the glands and female ports are different.

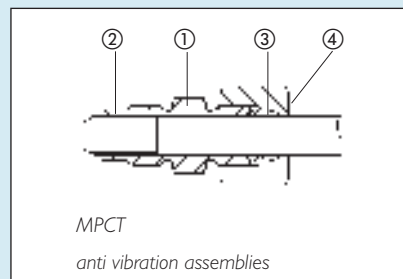
«HPCT» Imperial thread UNF

«E» Metric thread according to ISO

Anti Vibration Assemblies

Extensive insusceptibility to vibrations by the clamping action between collar 2 or collet 3 and the tube. The gland is effectively prevented from loosening by the additional radial seizure forces.

Tightness thanks to precision. The tightness of NOVA SWISS® high- and medium-pressure components is achieved by a metal-to-metal seal, without gasket or sealing ring. Two slightly offset tapers are forced onto one another. Leakage-free connections are assured by precision surface machining and fitting accuracy of the connection components.



Dependability and Durability.

NOVA SWISS® needle valves afford a maximum of safety and reliability, even under adverse operating conditions. The valves can be installed in either direction and will effectively seal both gaseous and liquid media.

The heart of the valve is the specially shaped seat and the two-piece non-rotating stem. The longevity and dependability of the valves are increased by the fact that the stem will not seize against the seat.

Pressure-containing parts are made of high-grade corrosion-resistant stainless steel.

Documented reliability thanks to individual serial numbers. We certify every single valve body. For applications with particularly stringent quality standards we offer you a certificate affording the complete traceability of all pressure-retaining parts.

NOVA SWISS® high- and medium-pressure valves are delivered complete with glands and collars.



Imperial Connections



Pressure	Connection	Tube-Ø	Orifice		Straight valve		Angle valve	T-valve	Replaceable-seat
10 kpsi (690 bar)	BSPP	1/4"	6,4 mm	0,18"	4,5 mm	NV1-10-4B	NV2-10-4B	NV3-10-4B*	–
		3/8"	9,5 mm	0,26"	6,5 mm	NV1-10-6B	NV2-10-6B	NV3-10-6B*	–
		1/2"	12,7 mm	0,30"	7,5 mm	NV1-10-8B	NV2-10-8B	NV3-10-8B*	–
10 kpsi (690 bar)	NPT	1/4"	6,4 mm	0,18"	4,5 mm	NV1-10-4N	NV2-10-4N	NV3-10-4N*	–
		3/8"	9,5 mm	0,26"	6,5 mm	NV1-10-6N	NV2-10-6N	NV3-10-6N*	–
		1/2"	12,7 mm	0,30"	7,5 mm	NV1-10-8N	NV2-10-8N	NV3-10-8N*	–
20 kpsi (1'380 bar)	MPCT	1/4"	6,4 mm	0,11"	2,8 mm	NV1-20-4M	NV2-20-4M	NV3-20-4M*	NV5-20-4M
		3/8"	9,5 mm	0,20"	5,0 mm	NV1-20-6M	NV2-20-6M	NV3-20-6M*	NV5-20-6M
		9/16"	14,3 mm	0,30"	7,5 mm	NV1-20-9M	NV2-20-9M	NV3-20-9M*	NV5-20-9M
		3/4"	19,1 mm	0,44"	11,1 mm	NV1-20-12M*	NV2-20-12M*	NV3-20-12M*	NV5-20-12M*
		1"	25,4 mm	0,56"	14,3 mm	NV1-20-16M*	NV2-20-16M*	NV3-20-16M*	NV5-20-16M*
30 kpsi (2'070 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	NV1-30-4H*	NV2-30-4H*	NV3-30-4H*	NV5-30-4H*
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-30-6H*	NV2-30-6H*	NV3-30-6H*	NV5-30-6H*
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-30-9H*	NV2-30-9H*	NV3-30-9H*	NV5-30-9H*
60 kpsi (4'140 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	NV1-60-4H	NV2-60-4H	NV3-60-4H*	NV5-60-4H
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-60-6H	NV2-60-6H	NV3-60-6H*	NV5-60-6H
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-60-9H	NV2-60-9H	NV3-60-9H*	NV5-60-9H

Metric Connections

Pressure	Connection	Tube-Ø	Orifice		Straight valve		Angle valve	T-valve	Replaceable-seat
4'000 bar	E	1/4"	6,4 mm	0,09"	2,4 mm	NV1-40-4E	NV2-40-4E	NV3-40-4E*	NV5-40-4E
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-40-6E	NV2-40-6E	NV3-40-6E*	NV5-40-6E
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-40-9E	NV2-40-9E	NV3-40-9E*	NV5-40-9E
7'000 bar	E	1/4"	6,4 mm	0,06"	1,6 mm	NV1-70-4E	–	–	NV5-70-4E

*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

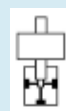
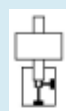
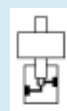
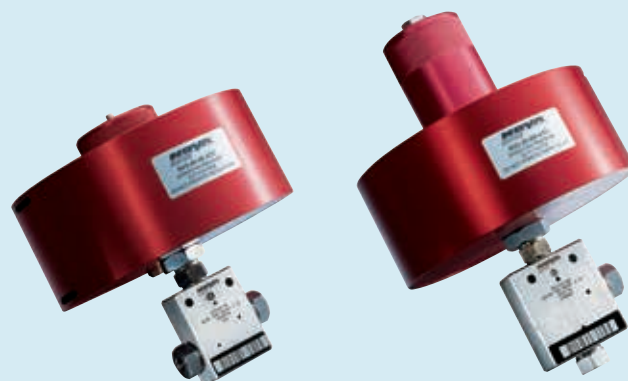
Air operated Valves

Automation and Monitoring of Air operated Valves

High-pressure systems can be automated easily and effectively with NOVA SWISS® valves with pneumatic actuators. The valve bodies and the sealing system are identical to those of the hand-operated valves, and afford the same advantages.

The very rugged and dependable pneumatic piston actuator is available in two different versions:

- ATO (air to open), opening with compressed air, i.e. normally closed
- ATC (air to close), closing with compressed air, i.e. normally open.



Imperial Connections

Pressure	Connection	Tube-Ø	Orifice		Straight valve		Angle valve	T-valve	Replaceable-seat
8 kpsi	BSPP	1/2"	12,7 mm	0,30"	7,5 mm	NV1-08-8B-xxx	NV2-08-8B-xxx	NV3-08-8B-xxx*	–
10 kpsi (690 bar)	BSPP	1/4"	6,4 mm	0,18"	4,5 mm	NV1-10-4B-xxx	NV2-10-4B-xxx	NV3-10-4B-xxx*	–
		3/8"	9,5 mm	0,26"	6,5 mm	NV1-10-6B-xxx	NV2-10-6B-xxx	NV3-10-6B-xxx*	–
10 kpsi (690 bar)	NPT	1/4"	6,4 mm	0,18"	4,5 mm	NV1-10-4N-xxx	NV2-10-4N-xxx	NV3-10-4N-xxx*	–
		3/8"	9,5 mm	0,26"	6,5 mm	NV1-10-6N-xxx	NV2-10-6N-xxx	NV3-10-6N-xxx*	–
		1/2"	12,7 mm	0,30"	7,5 mm	NV1-10-8N-xxx	NV2-10-8N-xxx	NV3-10-8N-xxx*	–
20 kpsi (1'380 bar)	MPCT	1/4"	6,4 mm	0,11"	2,8 mm	NV1-20-4M-xxx	NV2-20-4M-xxx	NV3-20-4M-xxx*	NV5-20-4M-xxx
		3/8"	9,5 mm	0,20"	5,0 mm	NV1-20-6M-xxx	NV2-20-6M-xxx	NV3-20-6M-xxx*	NV5-20-6M-xxx
		9/16"	14,3 mm	0,30"	7,5 mm	NV1-20-9M-xxx	NV2-20-9M-xxx	NV3-20-9M-xxx*	NV5-20-9M-xxx
30 kpsi (2'070 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	NV1-30-4H-xxx*	NV2-30-4H-xxx*	NV3-30-4H-xxx*	NV5-30-4H-xxx*
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-30-6H-xxx*	NV2-30-6H-xxx*	NV3-30-6H-xxx*	NV5-30-6H-xxx*
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-30-9H-xxx*	NV2-30-9H-xxx*	NV3-30-9H-xxx*	NV5-30-9H-xxx*
60 kpsi (4'140 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	NV1-60-4H-xxx	NV2-60-4H-xxx	NV3-60-4H-xxx*	NV5-60-4H-xxx
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-60-6H-xxx	NV2-60-6H-xxx	NV3-60-6H-xxx*	NV5-60-6H-xxx
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-60-9H-xxx	NV2-60-9H-xxx	NV3-60-9H-xxx*	NV5-60-9H-xxx

Metric Connections

Pressure	Connection	Tube-Ø	Orifice		Straight valve		Angle valve	T-valve	Replaceable-seat
4'000 bar	E	1/4"	6,4 mm	0,09"	2,4 mm	NV1-40-4E-xxx	NV2-40-4E-xxx	NV3-40-4E-xxx*	NV5-40-4E-xxx
		3/8"	9,5 mm	0,12"	3,0 mm	NV1-40-6E-xxx	NV2-40-6E-xxx	NV3-40-6E-xxx*	NV5-40-6E-xxx
		9/16"	14,3 mm	0,12"	3,0 mm	NV1-40-9E-xxx	NV2-40-9E-xxx	NV3-40-9E-xxx*	NV5-40-9E-xxx
7'000 bar	E	1/4"	6,4 mm	0,06"	1,6 mm	NV1-70-4E-xxx	–	–	NV5-70-4E-xxx

For ATO (Air To Open) and ATC (Air To Close) versions please add the respective suffix instead xxx.

Ordering examples:

- NV1-10-4B-ATO
- NV5-60-4H-ATC

*Products written in blue are available on request in quantities of 50 pieces or more.

**Only available as ATC.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Double-Block and Bleed Valves

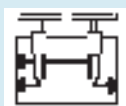
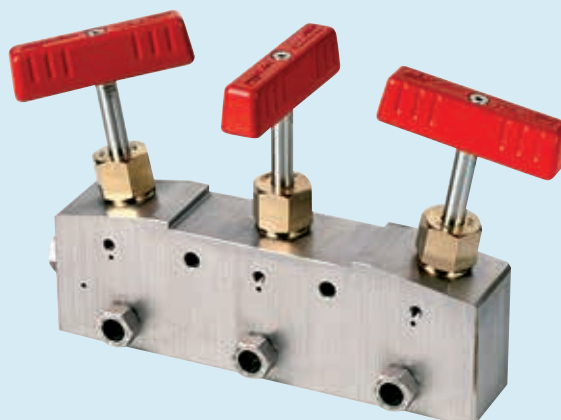
Block and Bleed Valve – BBV and DBV

Safety on small space available with NOVA SWISS® Block and Bleed valves (BBV) as well as Double Block and Bleed valves (DBV)

Allows disassembling of instrumentation and/or manometers without pressure in the line.

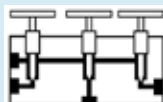
Eliminates numerous potential leak paths.
Reduced quantity of connecting parts, therefore easy assembling.

BBV available in 1/4", 3/8" and DBV in 1/4", 3/8", 9/16".



BBV

Pressure	Connection	Tube-Ø	Orifice	Type
20 kpsi	MPTC	1/4"	3 mm	BBV-20-4M
(1'380 bar)		3/8"	3 mm	BBV-20-6M



DBV

Pressure	Connection	Tube-Ø	Orifice	Type
20 kpsi	MPTC	1/4"	3 mm	DBV-20-4M
(1'380 bar)		3/8"	5 mm	DBV-20-6M
		9/16"	7.5 mm	DBV-20-9M







**Products written in blue are available on request in quantities of 50 pieces or more.*

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Options

NOVA SWISS® is very successfully active since decades in the high pressure industry with products up to 10'000 bar. Continuous developments result in diversified use and therefore our standard VFT range

is available for many different applications. A further option is ATEX certification. With special options our VFT products can be used for hydrogen, high cycling- as well as extreme temperature applications.

			Hand	Pneumatic	
-4	Hydrogen All parts made of special material which is resistant to hydrogen embrittlement. Manually or pneumatically driven		Special parts for hydrogen use are marked	x	x
-7 -12	High cycling Special stem (not corrosion resistant) and packing Stainless steel so far only for 1" available (-12)		Special finished stem (marked) and packing visible by green colour		x
-I	Sensors Support for inductive position sensors at pneum. valve for indicating end positions (sensors not included)				x
- ET	Extreme (low/high) temperature manually or pneumatically driven, for gas and liquids temperature of media: -250°C/+450°C also with „-4" option available			x	x
- MV	Metering valve dosing spindle – special stem		The special design of lower stem allows accurate metering	x	
ATEX	ATEX certificate upon request. Information about final application necessary.			x	x

Available on request.

Leakage-free Connections

NOVA SWISS® fittings guarantee the leakage-free connection of tubing and components.

They assure you a simple and dependable connection system. Connections can be made and disconnected an arbitrary number of times. Chamfered edges facilitate handling and reduces the risk of injury.

All fittings are supplied complete with glands and collars.

Imperial Connections



Pressure	Connection	Tube-Ø		Orifice		Elbow	Tee	Cross	Bulk head
20 kpsi (1'380 bar)	MPCT	1/4"	6,4 mm	0,11"	2,8 mm	ELB-20-4M	TEE-20-4M	CRS-20-4M	BLK-20-4M
		3/8"	9,5 mm	0,20"	5,2 mm	ELB-20-6M	TEE-20-6M	CRS-20-6M	BLK-20-6M
		9/16"	14,3 mm	0,35"	9,0 mm	ELB-20-9M	TEE-20-9M	CRS-20-9M	BLK-20-9M
		3/4"	19,1 mm	0,52"	13,1 mm	ELB-20-12M*	TEE-20-12M*	CRS-20-12M*	BLK-20-12M*
		1"	25,4 mm	0,69"	17,5 mm	ELB-20-16M*	TEE-20-16M*	CRS-20-16M*	BLK-20-16M*
30 kpsi* (2'070 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	ELB-30-4H*	TEE-30-4H*	CRS-30-4H*	BLK-30-4H*
		3/8"	9,5 mm	0,13"	3,2 mm	ELB-30-6H*	TEE-30-6H*	CRS-30-6H*	BLK-30-6H*
		9/16"	14,3 mm	0,18"	4,5 mm	ELB-30-9H*	TEE-30-9H*	CRS-30-9H*	BLK-30-9H*
60 kpsi (4'140 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	ELB-60-4H	TEE-60-4H	CRS-60-4H	BLK-60-4H
		3/8"	9,5 mm	0,13"	3,2 mm	ELB-60-6H	TEE-60-6H	CRS-60-6H	BLK-60-6H
		9/16"	14,3 mm	0,18"	4,5 mm	ELB-60-9H	TEE-60-9H	CRS-60-9H	BLK-60-9H

Metric Connections



Pressure	Connection	Tube-Ø		Orifice		Elbow	Tee	Cross	Bulk head
4'000 bar	E	1/4"	6,4 mm	0,09"	2,4 mm	ELB-40-4E	TEE-40-4E	CRS-40-4E	BLK-40-4E
		3/8"	9,5 mm	0,13"	3,2 mm	ELB-40-6E	TEE-40-6E	CRS-40-6E	BLK-40-6E
		9/16"	14,3 mm	0,18"	4,5 mm	ELB-40-9E	TEE-40-9E	CRS-40-9E	BLK-40-9E
7'000 bar	E	1/4"	6,4 mm	0,06"	1,6 mm	ELB-70-4E	TEE-70-4E	CRS-70-4E	BLK-70-4E
10'000 bar on request									



*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Glands, Collars, Plugs

Leakage-free Connecting and Sealing

High- and medium-pressure connections ensure the tight connection of NOVA SWISS® high-pressure components under pressure. The connections have no sealing rings and can be released and fitted with ease an arbitrary number of times. The sealing effect is achieved by forcing two slightly offset tapers against one another.

For connections or NOVA SWISS® high-pressure components which are subjected to constant vibrations we recommend the anti vibration assemblies. These assemblies will maximize the dependability and tightness of your high-pressure system.

Imperial Connections

Pressure	Connection	Tube-Ø		Gland	Collar	Plug	Anti vibration assemblies	
20 kpsi (1'380 bar)	MPCT	1/4"	6,4 mm	GLN-20-4M	COL-20-4	PLG-20-4	AVA-20-4M	**
		3/8"	9,5 mm	GLN-20-6M	COL-20-6	PLG-20-6	AVA-20-6M	**
		9/16"	14,3 mm	GLN-20-9M	COL-20-9	PLG-20-9	AVA-20-9M	**
		3/4"	19,1 mm	GLN-20-12M*	COL-20-12*	PLG-20-12*	AVA-20-12M*	**
		1"	25,4 mm	GLN-20-16M*	COL-20-16*	PLG-20-16*	AVA-20-16M*	**
30-60 kpsi (2'070-4'140 bar)	HPCT	1/4"	6,4 mm	GLN-60-4H	COL-60-4	PLG-60-4	AVA-60-4H	***
		3/8"	9,5 mm	GLN-60-6H	COL-60-6	PLG-60-6	AVA-60-6H	***
		9/16"	14,3 mm	GLN-60-9H	COL-60-9	PLG-60-9	AVA-60-9H	***

Metric Connections

Pressure	Connection	Tube-Ø		Gland	Collar	Plug	Anti vibration assemblies	
7'000 bar	E	1/4"	6,4 mm	GLN-70-4E	COL-70-4E	PLG-70-4E	AVA-70-4E	***
4'000 bar		3/8"	9,5 mm	GLN-40-6E	COL-60-6	PLG-60-6	AVA-40-6E	***
4'000 bar		9/16"	14,3 mm	GLN-40-9E	COL-60-9	PLG-60-9	AVA-40-9E	***
10'000 bar on request								

** MPCT anti vibration assemblies consist of collar, gland, collet and nut.

*** HPCT / E anti vibration assemblies consist of gland and collar.



Glands, Collars, Plugs are only available in sets of 10 pieces.

*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.



Allowing Flow in one Direction

NOVA SWISS® check valves are suitable for blocking the passage of a medium in one direction, as well as for allowing the leakage-free passage of the medium under pressure in the other. The combined metal-plastic seat assures optimum sealing for gases and liquids.

The check valves feature excellent flow rates, high leakage tightness and reliability at both low and high pressures. The replaceable seat affords easy and cost-effective maintenance.

High and medium pressure check valves are supplied complete with glands and collars.

Imperial Connections

Pressure	Connection	Tube-Ø		Orifice		Check valve
10 kpsi	BSPP	1/4"	6,4 mm	0,18"	4,5 mm	CVP-10-4B
(690 bar)		3/8"	9,5 mm	0,26"	6,5 mm	CVP-10-6B
		1/2"	12,7 mm	0,35"	9,0 mm	CVP-10-8B
10 kpsi	NPT	1/4"	6,4 mm	0,18"	4,5 mm	CVP-10-4N
(690 bar)		3/8"	9,5 mm	0,26"	6,5 mm	CVP-10-6N
		1/2"	12,7 mm	0,35"	9,0 mm	CVP-10-8N
20 kpsi	MPCT	1/4"	6,4 mm	0,11"	2,8 mm	CVP-20-4M
(1'380 bar)		3/8"	9,5 mm	0,20"	5,2 mm	CVP-20-6M
		9/16"	14,3 mm	0,35"	9,0 mm	CVP-20-9M
		3/4"	19,1 mm	0,52"	13,1 mm	CVP-20-12M*
		1"	25,4 mm	0,69"	17,5 mm	CVP-20-16M*
30 kpsi*	HPCT*	1/4"	6,4 mm	0,09"	2,4 mm	CVP-30-4H*
(2'070 bar)		3/8"	9,5 mm	0,13"	3,2 mm	CVP-30-6H*
		9/16"	14,3 mm	0,18"	4,5 mm	CVP-30-9H*
60 kpsi	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	CVP-60-4H
(4'140 bar)		3/8"	9,5 mm	0,13"	3,2 mm	CVP-60-6H
		9/16"	14,3 mm	0,18"	4,5 mm	CVP-60-9H

Metric Connections

Pressure	Connection	Tube-Ø	Orifice	Check valve		
4'000 bar	E	1/4"	6,4 mm	0,09"	2,4 mm	CVP-40-4E
		3/8"	9,5 mm	0,13"	3,2 mm	CVP-40-6E
		9/16"	14,3 mm	0,18"	4,5 mm	CVP-40-9E

*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Safety Heads, Bursting Discs



Effective overpressure Protection

NOVA SWISS® safety heads provide the assurance of overpressure protection and safety. The safety heads can be fitted with different bursting discs for different rupture pressures. Changing the bursting discs is easy and cost-effective.

Safety heads are supplied complete with glands and collars.

Imperial Connections

Pressure	Connection	Tube-Ø		Orifice		Safety head
20 kpsi (1'380 bar)	MPCT	1/4"	6,4 mm	0,11"	2,8 mm	SHD-20-4M
		3/8"	9,5 mm	0,13"	3,2 mm	SHD-20-6M
		9/16"	14,3 mm	0,13"	3,2 mm	SHD-20-9M
30 kpsi (2'070 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	SHD-30-4H*
		3/8"	9,5 mm	0,13"	3,2 mm	SHD-30-6H*
		9/16"	14,3 mm	0,13"	3,2 mm	SHD-30-9H*
60 kpsi (4'140 bar)	HPCT	1/4"	6,4 mm	0,09"	2,4 mm	SHD-60-4H
		3/8"	9,5 mm	0,13"	3,2 mm	SHD-60-6H
		9/16"	14,3 mm	0,13"	3,2 mm	SHD-60-9H

Metric Connections

Pressure	Connection	Tube-Ø		Orifice		Safety head
4'000 bar	E	1/4"	6,4 mm	0,09"	2,4 mm	SHD-40-4E
		3/8"	9,5 mm	0,13"	3,2 mm	SHD-40-6E
		9/16"	14,3 mm	0,13"	3,2 mm	SHD-40-9E



Safety and Protection through selective Rupturing

Bursting discs are manufactured of corrosion-resistant materials according to exacting standards. When designing your system it is important to make sure that the rupture tolerance of the discs is correctly accounted for. To avoid premature rupturing of the disc, the static operating

pressure of your system should be about 20% lower than the nominal rupture pressure of the bursting disc.

**Products written in blue are available on request in quantities of 50 pieces or more.*

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Filters, Adaptors, Connectors, Coupling

www.novaswiss.com

Clean filtering, easy changing.

NOVA SWISS® high-pressure filters filter highly pressurized gases or liquids. Filter elements can be changed in-situ with ease without the need to first disassemble the filter in front of the tubing. Filter cartridges are made of sintered material with pore sizes of 5 µm or 10 µm.



Metric Connections

Pressure	Connection	Tube-Ø		Orifice		Filter	Filter insert	Pore size
4'000 bar	E	1/4"	6,4 mm	0,12"	3,0 mm	FIL-40-4E	5.2027.014	5 µm
		3/8"	9,5 mm	0,12"	3,0 mm	FIL-40-6E	5.2027.014	5 µm
4'000 bar	E	1/4"	6,4 mm	0,12"	3,0 mm	FIL-40-4E-10	5.2027.015	10 µm
		3/8"	9,5 mm	0,12"	3,0 mm	FIL-40-6E-10	5.2027.015	10 µm

Adaptors, Connectors, Couplings

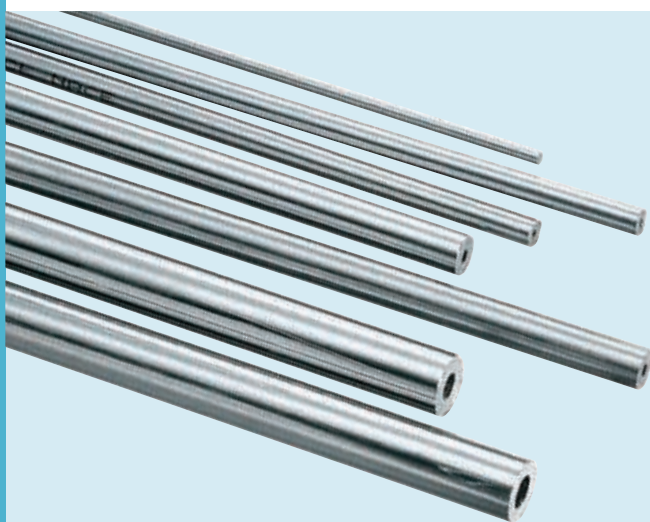
NOVA SWISS® offers a wide range of adaptors, connectors and couplings which are available in different types of connection to enable almost every conceivable connection and every interface to be realized. For more information please contact our local representative, or Nova Werke AG directly.



**Products written in blue are available on request in quantities of 50 pieces or more.*

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Tubing



Leakage-free Transfer of Liquids and Gases

NOVA SWISS® high-pressure tubing is made of high-grade stainless steel. They are seamless, cold-drawn and work-hardened to achieve high strength and corrosion resistance. In the manufacturing process the chemical composition of the material, as well as mechanical values, are tested according to strict criteria.

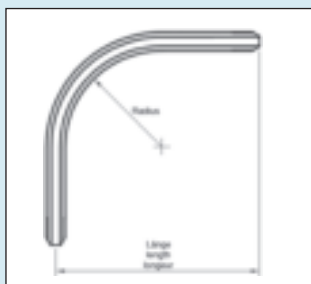
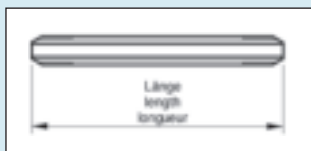
Tubing marked with «A» is soft-annealed and complies with the NACE MR0175 standard (latest revision). For applications that must comply with this standard, the tubing may not be bent.

Tube end machining tools are also available at NOVA SWISS®.

Pressure	Tube O/D		Tube I/D		Tubing
10 kpsi (690 bar)	9/16"	14,3 mm	0,36"	9,1 mm	TBG-10-9
	3/4"	19,1 mm	0,52"	13,1 mm	TBG-10-12*
	1"	25,4 mm	0,69"	17,5 mm	TBG-10-16*
20 kpsi (1'380 bar)	1/4"	6,4 mm	0,11"	2,8 mm	TBG-20-4
	3/8"	9,5 mm	0,20"	5,2 mm	TBG-20-6
	9/16"	14,3 mm	0,31"	7,9 mm	TBG-20-9
	3/4"	19,1 mm	0,44"	11,1 mm	TBG-20-12*
	1"	25,4 mm	0,56"	14,3 mm	TBG-20-16*
20 kpsi (1'380 bar)	1/4"	6,4 mm	0,11"	2,8 mm	TBG-20-4A
	3/8"	9,5 mm	0,19"	4,7 mm	TBG-20-6A
	9/16"	14,3 mm	0,28"	7,0 mm	TBG-20-9A
	3/4"	19,1 mm	0,37"	9,5 mm	TBG-20-12A*
	1"	25,4 mm	0,50"	12,6 mm	TBG-20-16A*
30 kpsi* (2'070 bar)	1/4"	6,4 mm	0,09"	2,4 mm	TBG-30-4A*
	3/8"	9,5 mm	0,13"	3,2 mm	TBG-30-6A*
	9/16"	14,3 mm	0,19"	4,8 mm	TBG-30-9A*
60 kpsi (4'140 bar)	1/4"	6,4 mm	0,09"	2,4 mm	TBG-60-4
	3/8"	9,5 mm	0,13"	3,2 mm	TBG-60-6
	9/16"	14,3 mm	0,19"	4,8 mm	TBG-60-9
7'000 bar (101'500 psi)	1/4"	6,4 mm	0,063"	1,6 mm	TBG-100-4

*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.



Straight or bent, complete with Tube End Machining.

NOVA SWISS® nipples are manufactured from our standard tubing. The threads and tapers at the ends are machined according to exact specifications. The precision surface quality of the tapers provide the assurance of leakage-free connection to NOVA SWISS® components in both gas and liquid applications.

Nipples marked with «A» are soft-annealed and comply with the NACE MR0175 standard (latest revision).



Pressure	Straight nipple	Length		Tube O/D		Radius nipple	Length		90° radius	
10 kpsi (690 bar)	SNP-10-9	3,46"	88 mm	9/16"	14,3 mm	RNP-10-9	4,88"	124 mm	2,62"	67 mm
	SNP-10-12*	4,09"	104 mm	3/4"	19,1 mm	RNP-10-12*	6,22"	158 mm	3,50"	89 mm
	SNP-10-16*	5,43"	138 mm	1"	25,4 mm	RNP-10-16*	8,27"	210 mm	4,62"	117 mm
20 kpsi (1380 bar)	SNP-20-4	2,20"	56 mm	1/4"	6,4 mm	RNP-20-4	2,68"	68 mm	1,25"	32 mm
	SNP-20-6	2,83"	72 mm	3/8"	9,5 mm	RNP-20-6	3,54"	90 mm	1,75"	44 mm
	SNP-20-9	3,46"	88 mm	9/16"	14,3 mm	RNP-20-9	4,88"	124 mm	2,62"	67 mm
	SNP-20-12*	4,09"	104 mm	3/4"	19,1 mm	RNP-20-12*	6,22"	158 mm	3,50"	89 mm
	SNP-20-16*	5,43"	138 mm	1"	25,4 mm	RNP-20-16*	8,27"	210 mm	4,62"	117 mm
20 kpsi (1380 bar)	SNP-20-4A	2,20"	56 mm	1/4"	6,4 mm	—	—	—	—	—
	SNP-20-6A	2,83"	72 mm	3/8"	9,5 mm	—	—	—	—	—
	SNP-20-9A	3,46"	88 mm	9/16"	14,3 mm	—	—	—	—	—
	SNP-20-12A*	4,09"	104 mm	3/4"	19,1 mm	—	—	—	—	—
	SNP-20-16A*	5,43"	138 mm	1"	25,4 mm	—	—	—	—	—
30 kpsi* (2070 bar)	SNP-30-4A*	2,52"	64 mm	1/4"	6,4 mm	—	—	—	—	—
	SNP-30-6A*	3,23"	82 mm	3/8"	9,5 mm	—	—	—	—	—
	SNP-30-9A*	4,09"	104 mm	9/16"	14,3 mm	—	—	—	—	—
60 kpsi (4140 bar)	SNP-60-4	2,52"	64 mm	1/4"	6,4 mm	RNP-60-4	2,83"	72 mm	1,25"	32 mm
	SNP-60-6	3,23"	82 mm	3/8"	9,5 mm	RNP-60-6	3,86"	98 mm	1,75"	44 mm
	SNP-60-9	4,09"	104 mm	9/16"	14,3 mm	RNP-60-9	5,28"	134 mm	2,62"	67 mm

*Products written in blue are available on request in quantities of 50 pieces or more.

Most of the components are made of stainless steel DIN 1.4404 / AISI 316L or DIN 1.4401 / AISI 316, tubes of stainless steel DIN 1.4404 / AISI 316L.

Diaphragm Compressors

Compression of ultra-pure Gases.

NOVA SWISS® diaphragm compressors are specially suited for compressing ultra-pure gases. The compression compartment is separated from the crank mechanism by diaphragms, thereby avoiding oil contamination of the gas.

Parts which come into contact with the medium are made of corrosion-resistant steel.

The compressor features high reliability, user-friendliness and low maintenance effort.

The compressor is secured against over-pressure on the oil side. Special versions for hydrogen (H_2) or oxygen (O_2) are available. The compressor is equipped with a diaphragm rupture indicator.

SUITABLE FOR GASEOUS NITROGEN, ARGON, HELIUM AND HYDROGEN



Diaphragm Compressors and Options

In the meantime these diaphragm compressors have been newly designed and there is a large number of innovations and options which lead to longer lifetime and much easier handling.

For example we have new diaphragm plates which have a much longer lifetime compared to the previous design.

The rupture indication is now integrated and as mechanical design standard. Furthermore it can be used for EEx applications (ATEX-certified) or it can be equipped with a diaphragm rupture switch.

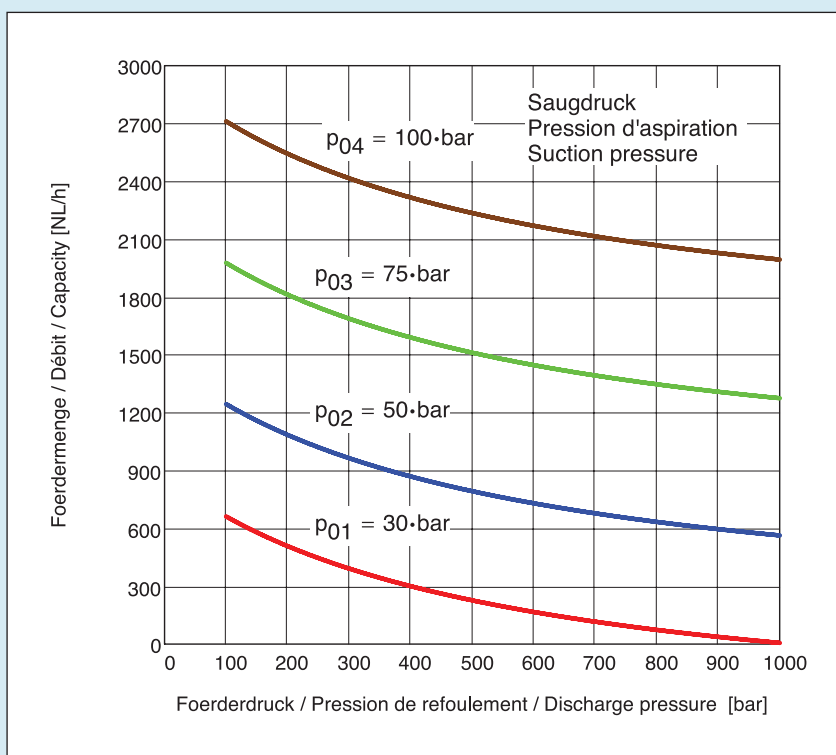
The head is now bigger and the upper part in stainless steel. The former pulsation damper is new replaced by hydraulic accumulator which makes bleeding unnecessary.

Diaphragm Compressors 1000 bar for Inert gases		
description	type	art.-no.
Compressor system with gear-motor	MK-1000-V09-GM	555.0228-001
Compressor system with V-belt drive	MK-1000-V09-VB	555.0228-002
Compressor system with servo-motor-drive	MK-1000-V09-SD	555.0228-003
Diaphragm Compressors 3000 bar for Inert gases		
Compressor system with gear-motor	MK-3000-V09-GM	555.0229-001
Compressor system with V-belt drive	MK-3000-V09-VB	555.0229-002
Diaphragm Compressor 1000 bar for Hydrogen		
Compressor system with gear-motor H2	MK-1000-V09-GM-H2	555.0230-001
Diaphragm Compressor 3000 bar for Hydrogen		
Compressor system with gear-motor H2	MK-3000-V09-GM-H2	555.0231-001

For further options please contact Nova Werke AG

Example: Performance diagram of diaphragm compressor (1'000 bar, N₂).

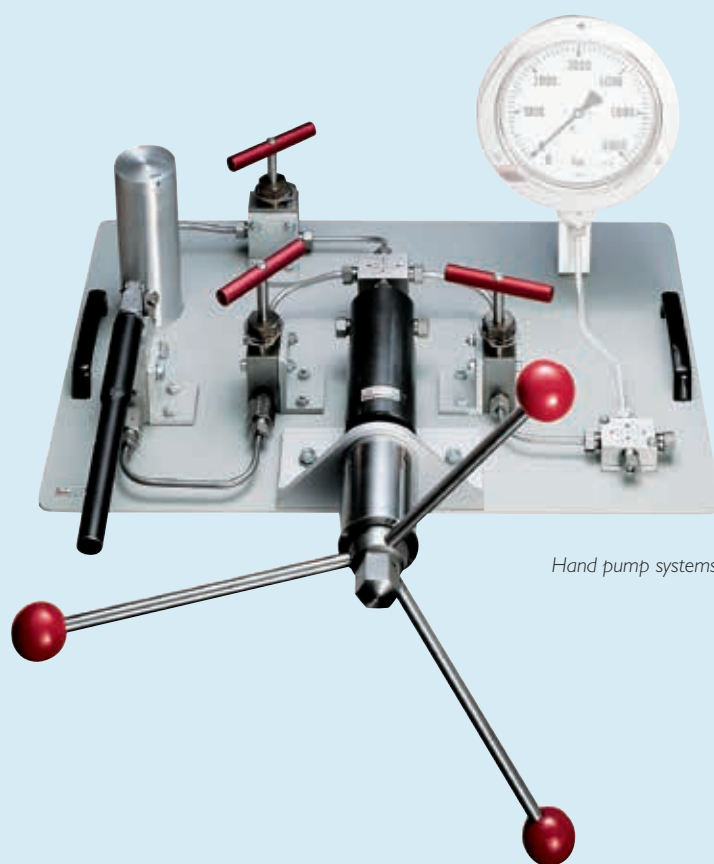
For other mediums and pressures please contact Nova Werke AG.



Hand Pumps and Hand Pump Systems

The NOVA SWISS® hand pump with spindle drive is the ideal pressure generator for smaller high-pressure systems. It is suitable for applications with all usual high-pressure fluids, including those with low viscosity. This pump can be used anywhere independent of a compressed air

or electrical power supply. With the fine-thread spindle any desired pressure can be fine-adjusted. Operation is facilitated by three long actuating levers. The spindle is non-rotating, thereby substantially increasing the longevity of the seal.



Hand pump systems

Max. output pressure	Connection	Piston displacement	Per rotation	Hand pumps	hand pump systems (without manometer)
7'000 bar (101'500 psi)	1 x 1/4" E	2,5 ccm	0,08 ccm	550.0400-2	565.0276
4'000 bar (58'000 psi)	3 x 1/4" E	5 ccm	0,15 ccm	550.0301.1	565.0277
2'000 bar (29'000 psi)	3 x 1/4" E	10 ccm	0,3 ccm	550.0202.1	565.0275

High Pressure Air driven Intensifier HPAP

www.novaswiss.com

General Description:

The NOVA SWISS® HPAP pump is available as simple ended air driver high pressure pump for 60'000 psi and 100'000 psi (4'000 bar and 7'000 bar).

Only usable for liquids.

Applications²

- Isostatic pressing (food processing, powders compacting, etc.)
- All liquid high pressure applications up to 100'000 psi

Technical Data

- Fluid: liquids¹
- Fluid temperature: from +5 °C to +40 °C
- Material in contact with fluid: stainless steel
- Connections: 4E
- Air driven alimentation: from 1.6 to 6.5 bar
- Liquid pressure regulated by a regulator on the driven air side
- Automatic stop at the set pressure

Advantages

- Easy to operate and to make the maintenance
- No air needed to keep the pressure
- Automatic leakage compensation on the high pressure side
- Reduced sizes and not expensive for very high pressure uses



HPAP-40-4E-SE

Ref.	Pressure	Type	LP Alim.	Air cons.	Mass	Dimensions
HPAP-40-4E-SE	4'000 bar (60 kpsi)	Simple Ended	1.6–6.5 bar	82 Nm ³ /h	34 kg	Ø 27 × L 86 mm
HPAP-70-4E-SE	7'000 bar (100 kpsi)	Simple Ended	1.6–6.5 bar	82 Nm ³ /h	34 kg	Ø 27 × L 86 mm

¹ The fluid used by the customer has to be communicated in order to check its compatibility with each material.

² Compatibility between the request and the application (material, fluid, pressure, temperature, connections, etc.) is subject to validation by NOVA SWISS®.

Customized Components

Safety Valve, Compliant to CE Norms and ATEX

- Safety valve compliant to CE norms
- ATEX certification
- HP side connection: 1/4" tubing
- Pressure set-point: 0–4'500 bar
67'000 PSI
- Captured vent connection: 1/4" NPT
- Temperature: –10°C + 250°C



High Pressure Flexible Hoses

- Flexible hoses up to 10 mtr for high pressure pure gas applications allow easy mounting in installations with limited space.
- Available up to 4'000 bar



Pressure Intensifier

- Medium: Liquids
- Pressure ratio: 1 : 16
- Max. Inlet pressure: 625 bar
- Max. Outlet pressure: 10 kbar
- Stroke indicator available

Applications:

- Ultra High Pressure Leakage Tests
- Autofrettage Machinery



Compressor/Motor-Groups

- Diaphragm Compressor
- 1'000 and 3'000 bar
- Inlet 20 to 200 bar
- Different drive versions



Pressure Supply Units (Dosing system)

- Pressure selectable
- Output up to 3'000 bar
- Pure Gas Compression
- N₂, He and Ar



Gas Injection Units (Dosing system)

- Up to 700 bar
- N₂ or CO₂
- Gas delivery for new or existing wire extrusion lines
- Very accurate pressure regulation



Typical Applications

10'000 PSI (690 bar)

- Physical Foaming of Wire Insulation



Laboratory equipment

20'000 PSI (1'380 bar)

- Hydrogen Filling Stations
(Fueling of Fuel Cell Cars)



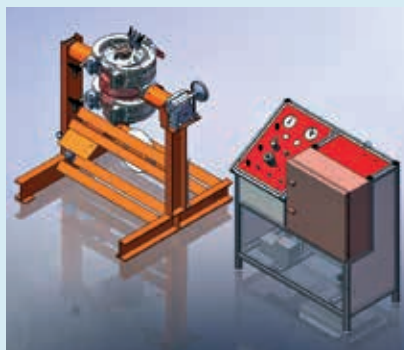
Industrial Cold Isostatic and Hot Isostatic Presses:

- High Pressure Sintering
- Hydraulic Pressure Sintering
- Pressure Sterilization



60'000 PSI (4'140 bar)

- High Pressure Test Benches



4'000 bar (58'000 PSI)

- Water Jet Machinery
- Laboratory Scale Isostatic Presses
- Simulation of geophysical pressure
- General Research



7'000 & 10'000 bar (101'500 & 145'000 PSI)

- High Pressure Test Benches
- Pressure Supply Units



The Company



High Pressure Technology



Engine Components



Surface Technology



Maintenance of Valves

Nova Werke AG is a Swiss high-tech company headquartered in Effretikon (Switzerland) with subsidiaries in France and Germany. The company comprises the four divisions:

- High Pressure Technology
- Engine Components
- Surface Technology
- Maintenance of Valves

Nova Werke AG develop and supply innovative and top quality products and services for high-performance applications

NOVA SWISS® is the trade mark of Nova Werke AG, and is acknowledged worldwide.



The management system

Quality is for all products, production processes and services of vital importance. Nova Werke AG is certified according to ISO 9001/14001/OHSAS 18001. The continuous improvement process is a major component of these requirements. It is systematically practiced in all areas.

The division "Engine Components" conforms to the standard of ISO/TS 16949 and thereby meets the highest demands on technical specification, system and process quality and management processes according to the automotive industry.

Nova Werke AG

Vogelsangstrasse 24
CH-8307 Effretikon / Switzerland
Phone +41 52 354 16 62
Fax +41 52 354 16 88
www.novaswiss.com
hpsales@novaswiss.com