

ASTAVA

SAFETY

SOLUTIONS

Company introduction

Since 1956, ASTAVA has been designing and manufacturing instrumentation valves for the oil&gas, (petro)chemical industries and nuclear power plants. Throughout its years of vast experience in the field of design, engineering and manufacturing at its fully owned factories, ASTAVA has been able to provide its customers with solutions and products that excel in their uniqueness and reliability. Thorough whilst progressive. ASTAVA has proven that these two concepts go well together in a superb collaboration between its various departments, working closely together in order to design new and improved products. By contacting the commercial staff at an early stage, ASTAVA is able to provide an optimal solution together with the customer. Our service goes beyond delivering instrumentation valves. It includes working together with our clients on a total solution for instrument hook-ups.

Markets

Astava products are delivered around the world either direct with HQ in The Netherlands or through on of our 16 sales offices. Our products are mainly applied in the below mentioned industries.

NUCLEAR



PROCESS



OIL & GAS



Quality

As guidance to the innovative processes within our company, people, procedures are mandatory. To support, monitor and develop Astava, our quality management systems consistently creates awareness to our personel and client to be able to design and manufacture products that meet customer demands and meet the relevant standards and regulations.

This quality is in line with the latest revision of the following standards and laws:

- ISO 9001
- PED 2014/68/EU
- REACH
- RoHS 2011/65/EU



History

Interlocking manifold, also referred to as High Integrity Manifold block, was invented by Astava engineering department in the Mid 80's. Driven by the innovative engineering skills within the company and increasing demand for fail safe products in the gas and oil market, available products at that moment could not full fill the requirements of the market.

In close co-operation with end-user technicians and operators the need for a **full mechanical interlock system** was defined. After an intensive period of engineering and review the **Astava Interlocking Manifolds** was presented. During the years Astava developed this into a full range of products including heaters, cabinets proximity switches. The complete scope including all accessories is referred to as **Astava Safety Solutions**

1981 Innovation and prototype Interlocking Manifold 2oo3 voting logic

1983 First sales of Interlocking Manifolds

1992 ISO 9001 approval

1998 Introduction interlocking solution to Mid East end-user

1999 Introduction transbar application

2001 Introduction Astava Interlocking Solution

2004 SIL 4 level certification 1oo2 and 2oo3 and 1oo4 based upon install base

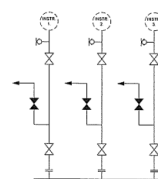
2007 Introduction Flanged Seal Solution with Low Fugitive Emission

2008 Introduction SIL 3 certified Fiscal Flow Metering application

2010 Introduction 1oo1 configuration single tapping solutions

2012 SIL 3 level certification 1oo1 systems

2018 Introduction Astava Safety Manifolds

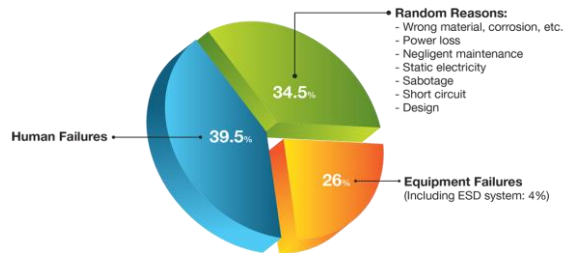


Vision

With the safety solution portfolio Astava executes developments and innovations in close co-operation with our clients base across the globe. This all in line with our safety vision of:

“ Creating operational safe instrument manifolds,
by ensuring pressure measurement integrity,
to improve process availability”

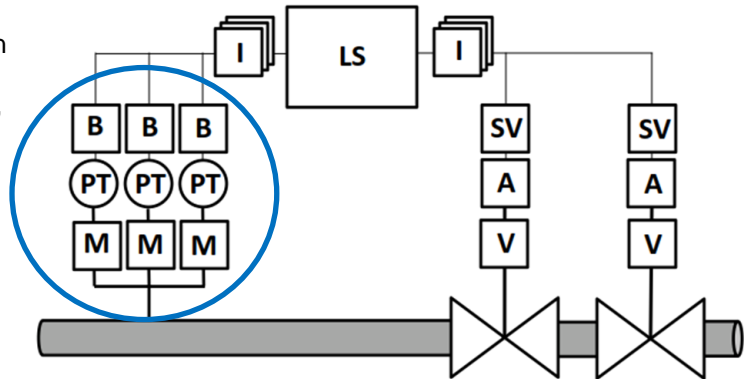
Studies have shown that risks can be splitted into 3 groups. The majority of the risks is formed by human failures. Proper training, continuous schooling and experience are tools to reduce the risk of human failures. Within the field instrumentation part of the industry Astava contributes by providing mechanical interlock solution to avoid the risk of human failures in operation



Field of applications

The field of applications for the Astava Safety Solution are numerous. From HIPPS (high integrity pressure protection system), PPS (pipe line protection system), SIS (safety instrumented systems) to SIL applications for pressure, differential pressure, level and flow.

On top special designs for fiscal flow metering, sampling to create operational safe instrument manifolds



Safety Integrity Level (IEC 61508/61511)

The Astava Interlocking manifold, often called the Interlocking manifold or High Integrity Manifold Block (HIMB) has been tested and examined by TUV in Germany in accordance with the IEC 61508 in 2002. The test resulted in certification of the Astava Interlocking with a Probability of Failure on Demand (PFD-value). One of the most unique stage in this process was the fact Astava is capable of giving **input on failure rates based upon in the install base since 1983**. Based upon this data and all requirement stipulated in the IEC 61508/61511 this resulted extreme low PFD (propability of failure on demand), which results in obtaining certain SIL level:

Model configuration	SIL Level
1002	4
2003	4
1004	4
1001	3



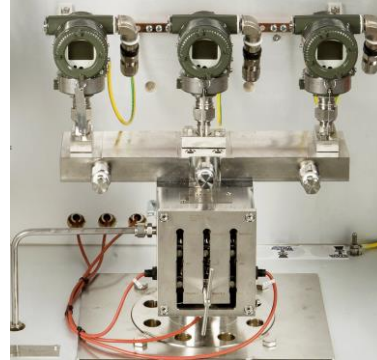
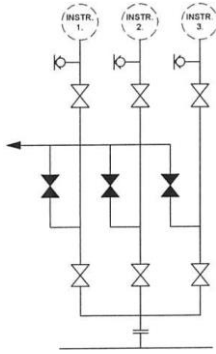
For latest PFD values and certificates please click [here](#)

Productgroup Astava interlocking manifold

The Astava Interlocking manifold productgroup is splitted into 2 groups

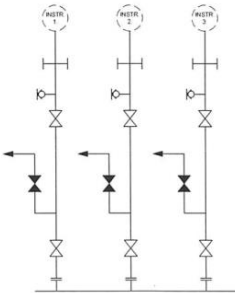
1. Common Tapping Solution

The common tapping solutions are based upon **one common inlet** from which each individual measuring device has its dedicated connection inside the interlocking manifold. The inlet is dimensioned at maximum size as per flange standard and size applied. Minimum is DN50 inlet on the process side.



2. Single Tapping Solution

The single tapping solution is based upon **individual tapping** per measuring device. As a result the CCF (common cause failure) factor is reduced in the overall SIL assessment for the full scope of supply.



How to order Interlocking Manifold - Common Tapping Solution

Interlocking manifold globe needle					
4	Individual block-bleed-test functionality for two instruments (1oo2), one common tapping				
8	Individual block, block and bleed functionality for three instruments (2oo3) one common tapping				
9	Individual block-bleed-block-test functionality for three instruments (2oo3)				
12	Individual block-bleed-block-test functionality for four instruments (1oo4)				
Transmitter mounting					
TT	Transbar mounting on top of interlocking				
N	1/2" NPT F, no transbar				
Type of connection					
-E	2.1/16" API B Flange				
-F	2" ASME B16.5 - 2003 RF. Flange 3.2-6.3 µm				
-J	2" ASME B16.5 - RTJ				
-S	Threaded connection 1/2-14 NPT - multiple inlets				
Ratings (barg)		AISI 316	Duplex / 254Smo	Alloy 400	625 / C276
-10	ASME 150 lbs	19 barg	20 barg	16 barg	20 barg
-11	ASME 300 lbs	50 barg	52 barg	42 barg	52 barg
-12	ASME 600 lbs	100 barg	104 barg	83 barg	104 barg
-13	ASME 900/1500 lbs	248 barg	259 barg	207 barg	259 barg
-14	ASME 2500 lbs	413 barg	431 barg	345 barg	431 barg
-18	API 10,000 psi	690 barg			
Body material (all ISO 15156)	Other material	Stem material	O-ring seal	Temp.	
-603	Alloy C-276	Alloy C-276	Viton	-20/200 Degr C	
-608	Duplex, W. Nr. 1.4462	Duplex 1.4462	Silicone rubber	-55/230 Degr C	
-612	Alloy 625	Alloy 625	Silicone rubber	-55/230 Degr C	
-617	AISI 316 (L)	AISI 316 (L)	Silicone rubber	-55/230 Degr C	
-619	Duplex 22Cr M650	Duplex 22Cr M650	Silicone rubber	-55/230 Degr C	
-620	AISI 316 (L)	AISI 316 (L)	Kalrez®	-40/316 Degr C	
-616	AISI 316 (L)	AISI 316 (L)	EPDM	-55/150 Degr	
-623	Alloy 825	Alloy 825	Silicone rubber	-55/230 Degr C	
-626	AISI 316 (L)	AISI 316 (L)	Fluorsilicone	-55/230 Degr C	
-696	SuperDuplex	Superduplex	Silicone Rubber	-55/230 Degr C	
-698	254 Smo (EN 1.4547)	254 Smo	Silicone rubber	-20/200 Degr C	
-0	Others on request				
Explosionproof proximity switches					
-00	No proximity switches required.				
-2	2 Proximity switches for "1 out of 2" interlocking manifold				
-3	3 Proximity switches for "2 out of 3" interlocking manifold				
-4	4 Proximity switches for "1 out of 4" interlocking manifold				
.D	Ex d Proximity switch for interlocking manifold, AISI 316 (L), SPDT; Atex				
.K	Ex I Proximity switch for interlocking manifold, AISI 316 (L), SPDT, Atex				
.M	Proximity switch for interlocking manifold, AISI 316 (L), DPDT; UL Class 1 Div 1				
.N	Proximity switch for interlocking manifold, AISI 316 (L), SPDT; UL Class 1 Div 1				
Options					
-011	10 mm bore all internal bores; sliding key in slotted plate on side of manifold checkvalves ASTAVA				
-012	10 mm bore; sliding key in slotted plate; Minimes connectors in W. 1.4571				
-014	10 mm bore; sliding key in slotted plate; Minimes connectors in W. 1.4571; DP solution				
-100	No test connectors with check-valve; only one vent/test connection 1/4 NPT female				

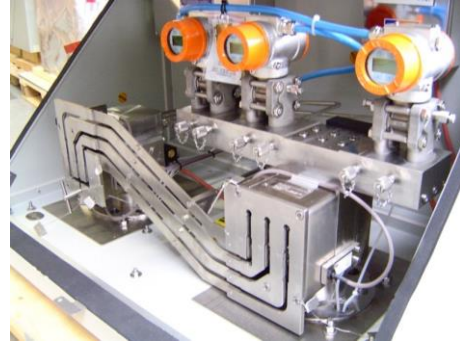
How to order Interlocking Manifold - Single Tapping Solution

Interlocking manifold globe needle					
1	One common test, double block and bleed functionality for two instruments (2oo1) No SIL				
2	block-bleed-test functionality for one instrument (1oo1), single tapping				
3	block-bleed-block-test functionality for one instrument (1oo1), single tapping				
20	block-bleed-block-blocked test functionality for one instrument (1oo1), single tapping				
Transmitter mounting					
TT	Transbar mounting on top of interlocking				
N	1/2" NPT F, no transbar				
Type of connection					
-E	2.1/16" API B Flange				
-F	2" ASME B16.5 - 2003 RF. Flange 3.2-6.3 µm				
-H	1/2 ANSI RTJ Flange				
-J	2" ASME B16.5 - RTJ				
-S	Threaded connection 1/2-14 NPT - multiple inlets				
Ratings (barg)		AISI 316	Duplex / 254Smo	Alloy 400	625 / C276
-10	ASME 150 lbs	19 barg	20 barg	16 barg	20 barg
-11	ASME 300 lbs	50 barg	52 barg	42 barg	52 barg
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-17	API 5,000 psi	345 barg			
-18	API 10,000 psi	690 barg			
Body material (all ISO 15156)	Other material	Stem material	O-ring seal	Temp.	
-603	Alloy C-276	Alloy C-276	Viton	-20/200 Degr C	
-608	Duplex, W. Nr. 1.4462	Duplex 1.4462	Silicone rubber	-55/230 Degr C	
-612	Alloy 625	Alloy 625	Silicone rubber	-55/230 Degr C	
-617	AISI 316 (L)	AISI 316 (L)	Silicone rubber	-55/230 Degr C	
-619	Duplex 22Cr M650	Duplex 22Cr M650	Silicone rubber	-55/230 Degr C	
-620	AISI 316 (L)	AISI 316 (L)	Kalrez®	-40/316 Degr C	
-616	AISI 316 (L)	AISI 316 (L)	EPDM	-55/150 Degr	
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-696	SuperDuplex	Superduplex	Silicone Rubber	-55/230 Degr C	
-698	254 Smo (EN 1.4547)	254 Smo	Silicone rubber	-20/200 Degr C	
Explosionproof proximity switches					
-00	No proximity switches required.				
-1	1 Proximity switch for "1 out of 1" HIPPS				
.E	EAC Proximity switches for interlocking, AISI 316, SPDT, Eex i				
.L	Ex i Proximity switch for interlocking manifold, NJ2-12GK-SN (M12x1)				
.S	Ex i Proximity switch for interlocking manifold, NJ2-11-SN-G (M14x1) AISI 316				
.D	Ex d Proximity switch for interlocking manifold, AISI 316 (L), SPDT; Atex				
.K	Ex I Proximity switch for interlocking manifold, AISI 316 (L), SPDT, Atex				
Options					
-011	10 mm bore all internal bores; sliding key in slotted plate on side of manifold checkvalves ASTAVA				
-012	10 mm bore; sliding key in slotted plate; Minimes connectors in W. 1.4571				
...1	Unique key lock system to maintain 2oo3 functionality for 3x single tapping manifold				
...2	Unique key lock system to maintain 1oo2 functionality for 2x single tapping manifold				
...4	Unique key lock system to maintain 1oo4 functionality for 4x single tapping manifold				

How to order Astava Safety Solution

Beside the interlocking manifold Astava provides complete pre-installed Astava Safety Solutions. This includes the design, assembling testing and certification according end-user requirement (EAC, GOST-K, IEC).

Interlocking housing	
T00-	1 Pressure transmitter
TTT-	3 Pressure transmitters
Type of transmitter	
X00-	1 Pressure transmitter threaded connection ½" NPT(F)
XXX-	3 Pressure transmitter threaded connection ½" NPT(F)
FFF-	3 Pressure transmitter flanged connection
MMM-	3 Pressure transmitters threaded connection ½" NPT(M)
Housing	
A	Blind Housing AISI 316 (W= 700, H=600, D=550), IP65
M	Housing AISI 316 with window safety glass (W= 430, H= 530, D= 390) , IP65
N	Housing AISI 316 with window safety glass (W=700, H= 600, D= 550) , IP65
Insulation	
I	Polystyrene insulation
Heater	
0	No heater
A	2x block heater 250-25 W, Atex, Eex d 230 V/AC, AISI 316
B	block heater 250-25 W, Atex, Eex d 230 V/AC, black anodized
Thermostat	
0-	No thermostat
T-	Thermostat Atex, Eex d 230 V/AC, setpoint
Low temperature alarm	
3A-	Including Low Temperature switch
2P-	Including Temperature transmitter, Astava PT-100 element probe type
Junction boxes	
0JB0-	No Junction boxes
1JBG-	1 Junction box polyester
2JBG-	2 Junction boxes polyester
1JBA-	1 Junction box AISI 316 (L)
2JBA-	2 Junction boxes AISI 316 (L)
Glands / brand / material	
1	Cable gland Polyamide
2	Cable gland Brass Nickel Plated
4	Cable gland AISI 316 (L)
Options	
01	earth rail / pe-rail
22	2x 2" mounting bracket outside in stainless steel (300 mm c-to-c)
80	Painting of cabinet included per project specific requirements
MT	Transmitter Free Issue supplied by client, assembly by Astava
MTA	Transmitter and assembly scope of Astava



Life cycle guarantee / product life cycle service

The Astava Safety Solutions are engineered and constructed for 30 years life time. During this period Astava offers service to the client base for frequent health check to support life cycle guarantee. This can be planned during outage and down time periods. Astava service engineers are available across the world. Besides sending our engineers into the field work can also be executed from our safety excellence centre in Meppel, The Netherlands.



Contact details

Our company invites you to be in contact for creating operational safe instrument manifolds, by ensuring pressure measurement integrity, to improve process availability. Below our contact details

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