GRUNDFOS MODULAR ASEAN BOOSTER / TRANSFER SYSTEM



Presenter: STEPHEN LIM

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GRUNDFOS

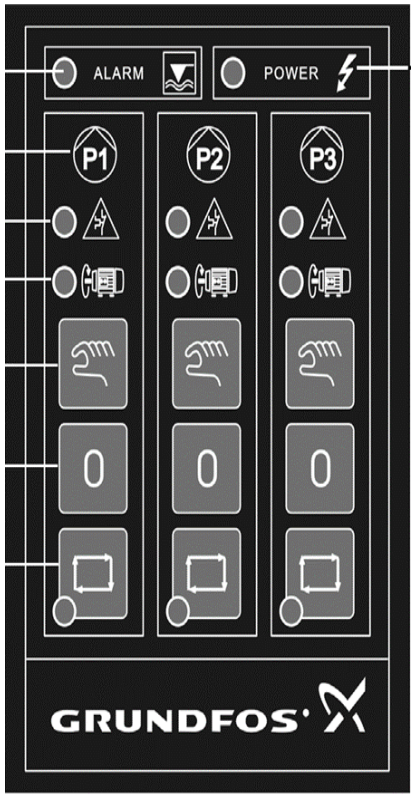




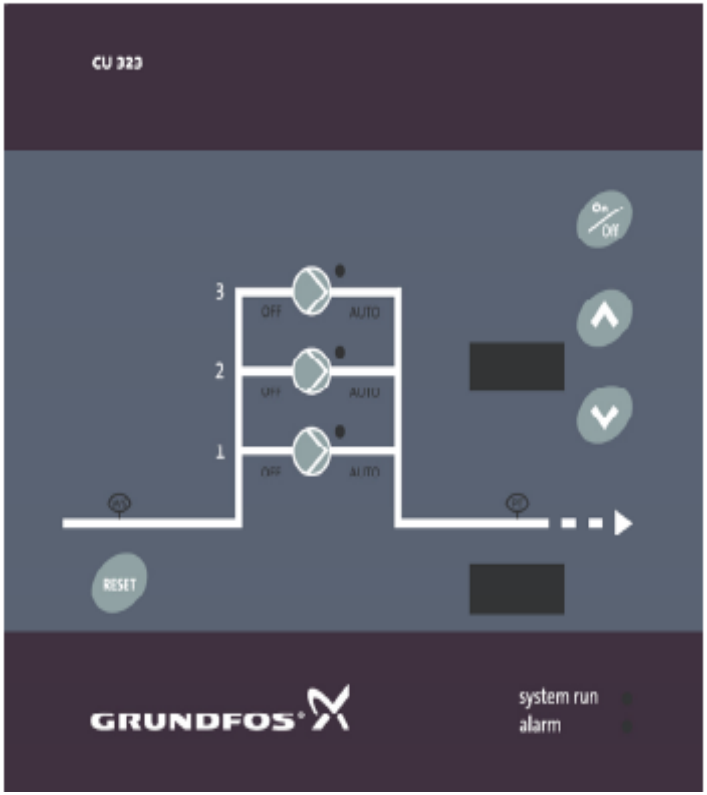
Traditional Building Construction

Modular Building Construction

Intelligent Patented Controllers



Multi-S
On-Off



Multi-B
Basic VSD



Hydro-MPC
Advance VSD

Pre Engineered – What does it mean



PRE-ENGINEERED

- ❑ Range to Local Standard
- ❑ Fully Documented
- ❑ Options and variants to local market

BY GRUNDFOS

- ❑ BRANDING
- ❑ Same brand & Design

TESTED AND VERIFIED

- ❑ We test and document
- ❑ Our design is verified
- ❑ One Supplier, Single ownership and responsibility

ASEAN Booster Range



Grundfos Multi-MPC

A Range of turnkey, packaged solutions designed purely for the ASEAN built environment



Grundfos Multi-B

Grundfos Multi-S



Application Variants

STANDARD!



Pressure Boosting

- Constant Presssure
- Protects against Waterhammer
- Perfect adaption to flow
- Speed controlled pumps
- Energy optimized cascade

FPV VARIANT!



Tank Filling

- Safe filling of Rooftanks water towers
- Protects against Waterhammer
- Standby pumps
- Switches or sensor



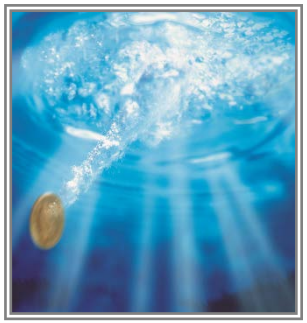
CONSTANT PRESSURE

Continuously adapting the speed of the pumps to the flow demand.
Required pressure is kept constant despite of fluctuations in flow.
Start / Stop of the speed controlled pumps are done in a manner that minimizes pressure surges and protects the piping.



EASY TO OPERATE

The CU 352 is equipped with a big color screen that communicates in plain text and with intuitive icons.
The start up wizard makes commissioning quick and easy.



ENERGY SAVINGS

Built-in Logic to select the optimum number of pumps and optimizing the energy usage continuously.
Pump curve data is used to determine the most efficient speed and number of pumps to meet the desired flow and pressure.



APPLICATION OPTIMIZED FUNCTIONS

Besides running at optimal efficiency, the CU 352 is equipt with functions that ensures the system performs perfect in any application.
Functions can be set up so that system conforms to the needs of the application.



MONITORING

Logging function to monitor the performance of the system.
Logged data can be shown on the large color screen or exported to a PC for further analysis.
Monitoring system performance allows us to react on problems before they occur and provide valuable data about changes in demand



COMMUNICATION

Applies most common Field-Bus protocols via optional communication cards. Built in Ethernet connection allows access the controller via a web browser
Controller can be equipped with GRM communication for logging and monitoring via the Internet.



REDUNDANCY

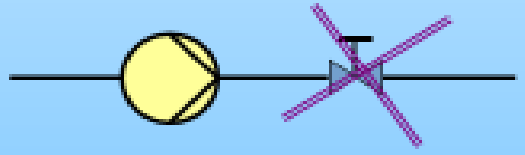
Possibility to assign one or more standby pumps to take over incase of pump failure.
Possibility to install extra primary sensor to continuously monitor the sensors for discrepancy.
Possibility to define system reaction in case all sensors should fail.

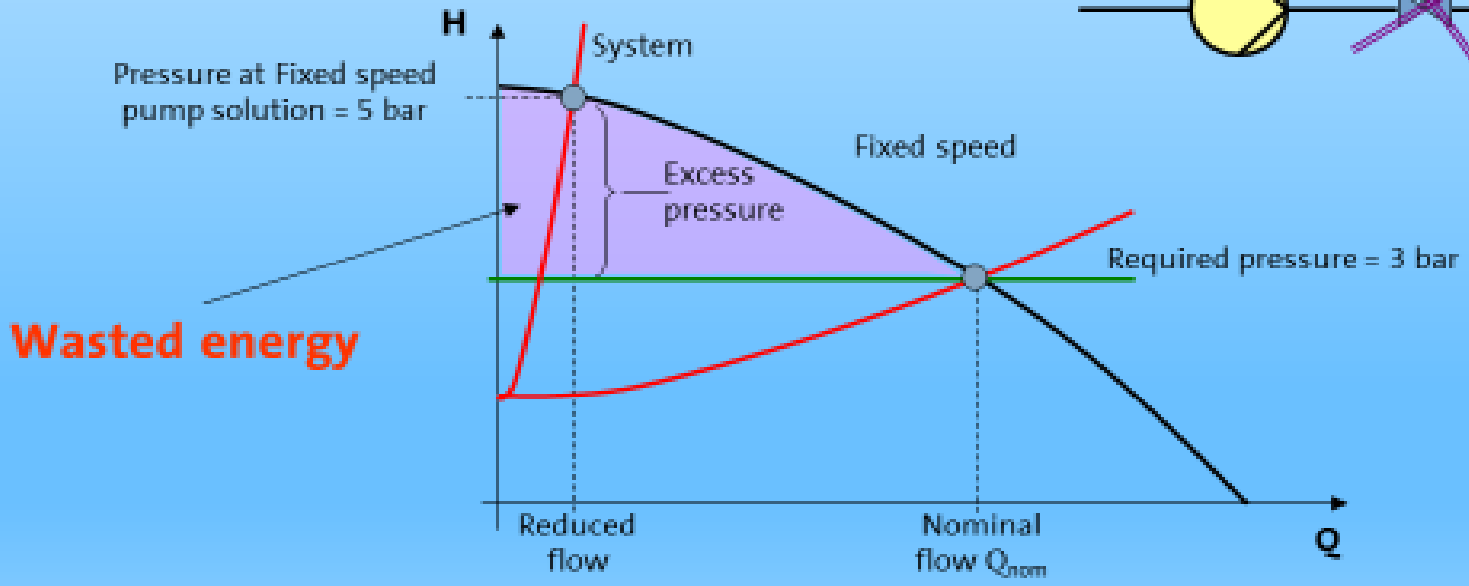
Ability to control VSD driven pumps...

Why speed controlled pumps ?

An example energy saving :

- A fixed speed water supply pump has a H_{nom} = 3 bar at Q_{nom}
- The flow has to be controlled by a throttle valve
- By reduced flow the pressure will increase to more than 5 bar



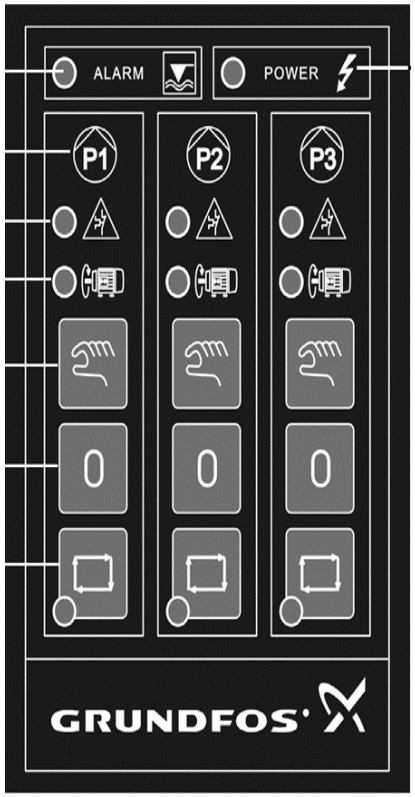


Spot the Difference

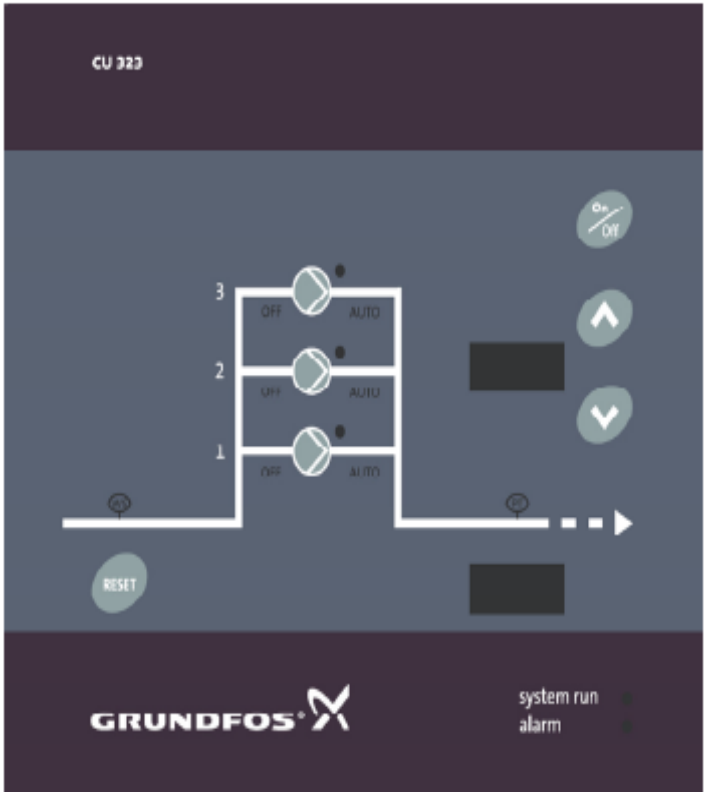




Intelligent Patented Controllers



Multi-S
On-Off



Multi-B
Basic VSD



Hydro-MPC
Advance VSD

Production of stainless steel manifolds









Modular Double Door Control Panel









CUE

Grundfos Booster

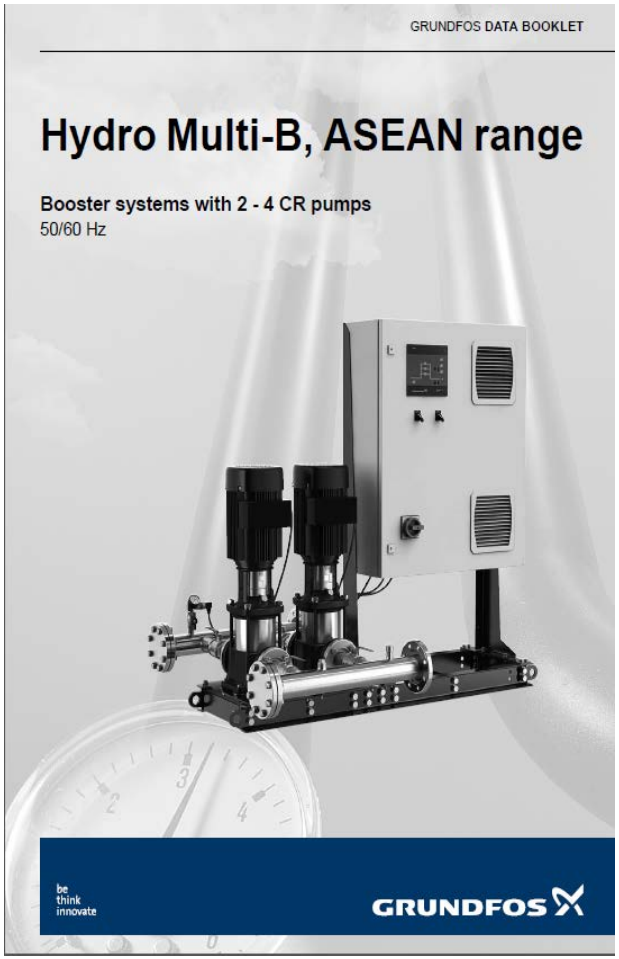


Grundfos Modular Booster Systems:

1. Multi-S
2. Multi-B CR
3. Hydro- MPC

Grundfos Multi-S, Multi-B & Multi-MPC







Multi-S

Multi-B

Multi-MPC

Modular Booster ISO Factory Performance Test



Test Report for Booster System

No Standard

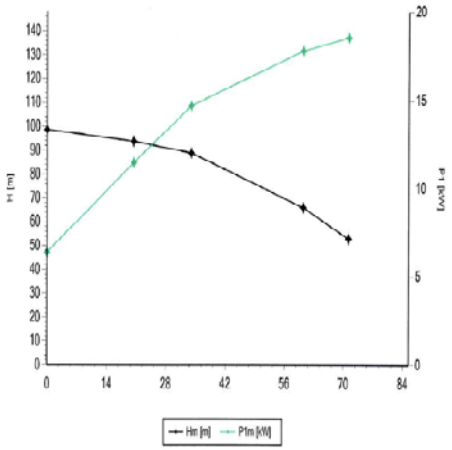
Customer:		Serial number:	98806447P117070001
Order number:		Date:	14/02/2017 10:43
Operator:	GSI	Tested:	579043

Pump type:

Product number:

Motor manufacturer:

Measured values for tested Booster System



Test Report for Booster System

No Standard

Customer:		Serial number:	98806447P117070001
Order number:		Date:	14/02/2017 10:43
Operator:	GSI	Tested:	579043

Result:

	Qm [m3/h]	Hm [m]	p_inlet [bar]	EsQ [kWh/m3/h]	EsQH [kWh/m3/h/m]
Point 1	71.15	52.99	1.91	0.2606	0.0049
Point 2	60.37	66.65	1.9	0.295	0.0045
Point 3	33.96	88.91	1.89	0.4324	0.0049
Point 4	20.29	93.78	1.88	0.5651	0.006
Point 5	0.09	98.64	1.88	0	0

	U1 [V]	U2 [V]	U3 [V]	f [Hz]	I_Avg [A]	P1m [kW]	n_total [%]
Point 1	406.7	409.5	409.2	50	37.51	18.54	55
Point 2	406.6	409.4	409.0	50	35.99	17.81	61
Point 3	407.1	409.9	409.5	50	30.31	14.68	56
Point 4	407.6	410.3	410.0	50	24.17	11.47	45
Point 5	407.9	410.7	410.3	50	14.23	6.38	0

Static High Pressure Test

A static pressure test was performed at 15.50 bar

Full ISO 9906 Performance test on Multi-S, Multi-B and MPC systems
Test report and performance pump curve data report ready.
Hydrostatic pressure test

Warranty & DLP

GRUNDFOS **HYDRO MPC**

GRUNDFOS MANUFACTURING CERTIFICATE



HYDRO MPC PRESSURE BOOSTER SYSTEM

This certifies the below detailed pump system complies with the standards and inclusions listed in the Hydro MPC Specification Guarantee detailed overleaf. The pumps, manifolds and control panel were manufactured and tested as a complete booster system in a Grundfos factory. When installed in accordance with the Grundfos installation guidelines, this certificate guarantees a 2 year Grundfos warranty on the every component within the complete system.

System Model Number:

System Serial Number:

Tested By:

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HYDRO MPC SPECIFICATION GUARANTEE

All Grundfos Hydro MPC CR packaged pressure boosting systems carry **2 year warranty** on the complete system when supplied with certificate of manufacture from Grundfos and installed and operated in accordance with the manufacturers instructions.

PRE-ENGINEERED BY GRUNDFOS TESTED AND VERIFIED

THE GRUNDFOS 10 POINT GUARANTEE

Grundfos Hydro MPC pressure boosting systems are guaranteed to be manufactured and tested in accordance with the following:

1. The complete system is manufactured in a Quality Assured ISO 9001 certified factory to guarantee high quality equipment, manufactured consistently to quality assured standards.
2. All Grundfos CR vertical multistage pumps are individually performance tested on an ISO9906 certified system. This guarantees every single pump will perform according to published data, providing the highest level of quality and energy efficiency. Test data is recorded for every pump used on a booster system, this data is available on request.
3. The complete Grundfos system is subjected to a final factory functionality test. This test prevents wasting significant time and money on-site for rectification and setting of third party control parameters that unlike Grundfos are not designed, manufactured, tested and verified by a single manufacturer to work together as an engineered match.
4. The complete system is hydro-statically tested to 1.5 times the maximum nominated operating pressure to guarantee system integrity and eliminate leaks.
5. All pump motors comply with IE3 efficiency ratings, to ensure high energy efficiency.
6. All variable frequency drives (VFD's) used carry a C-tick label that confirms compliance with the applicable technical standards Electromagnetic Compatibility (EMC). Each VFD is engineered by Grundfos to perfectly match each CR motor to guarantee extended motor winding and bearing life.
7. All pipework and manifolds are fabricated using 304 Stainless Steel pipe (Optional – Galvanised Steel). This helps guarantee reduced water contamination through corrosion and provide a longer, leak free, manifold service life.
8. Mechanical and electrical engineering drawings are available for every system. Manufacturing details are recorded on the certificate to ensure specific system traceability for the life of the system. This guarantees product support and spare parts identification through the system's operational life, regardless of ownership or service provider changes.
9. All systems are supplied as standard with a document folder including; Electrical schematic of control panel, System/Pump installation and operating instructions, Quick set-up guide and Grundfos Manufacturing Certificate.
10. The pump controller, Grundfos MPC CU352, is designed and manufactured by the same company as the CR pumps. The human–machine interface (HMI) contains installation and commissioning wizards to ensure easy and correct system start-up and operation. These are pre-programmed during functional testing at the factory.

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- Manufacturing certificate will be provided for Multi-B CR and Hydro MPCa.
- 2 years warranty will be provided the booster system.
- The DLP period is approx. 18 month based on project requirements.

SINGAPORE GREEN BUILDING COUNCIL

SINGAPORE GREEN BUILDING PRODUCT CERTIFICATE

AWARDED TO

Grundfos (S) Pte Ltd
25 Jalan Tukang Singapore 619264

FOR THE PRODUCT

VSD Multi Booster/Transfer Pump System

PRODUCT BRAND

Grundfos

PRODUCT MODEL

Multi MPC 3X CRN20-3 c/w 4kW 415/3/50

THE PRODUCT HAS BEEN ASSESSED ACCORDING TO THE ASSESSMENT CRITERIA OF THE SINGAPORE GREEN BUILDING PRODUCT CERTIFICATION SCHEME. IT HAS BEEN AWARDED THE RATING :

SINGAPORE GREEN BUILDING PRODUCT SGBC ✓✓✓✓ LEADER

Director
SGBC Pte Ltd

Certificate Number	Original Issue Date	Last Revision Date	Valid Till
SGBP 2017 - 966	4th August 2017	-	13th August 2019

✓Good ✓✓ Very Good ✓✓✓ Excellent ✓✓✓✓ Leader

The use and reliance on this certificate is subject to the terms and conditions of the Singapore Green Building Product Certification Scheme. Revised certificates may also be issued at the discretion of the Council. The certification status may be verified at the Singapore Green Building Council website (www.sgbc.sg).

SINGAPORE GREEN BUILDING COUNCIL

SINGAPORE GREEN BUILDING PRODUCT CERTIFICATE

AWARDED TO

Grundfos (S) Pte Ltd
25 Jalan Tukang Singapore 619264

FOR THE PRODUCT

VSD Multi Booster/Transfer Pump System

PRODUCT BRAND

Grundfos

PRODUCT MODEL

Multi-B 2X CRN32-2 c/w 4kW 415/3/50

THE PRODUCT HAS BEEN ASSESSED ACCORDING TO THE ASSESSMENT CRITERIA OF THE SINGAPORE GREEN BUILDING PRODUCT CERTIFICATION SCHEME. IT HAS BEEN AWARDED THE RATING :

SINGAPORE GREEN BUILDING PRODUCT SGBC ✓✓✓✓ LEADER

Director
SGBC Pte Ltd

Certificate Number	Original Issue Date	Last Revision Date	Valid Till
SGBP 2017-812	16th May 2017	4th August 2017	15th May 2019

✓Good ✓✓ Very Good ✓✓✓ Excellent ✓✓✓✓ Leader

The use and reliance on this certificate is subject to the terms and conditions of the Singapore Green Building Product Certification Scheme. Revised certificates may also be issued at the discretion of the Council. The certification status may be verified at the Singapore Green Building Council website (www.sgbc.sg).

Feedback and Questions





