

8.4 Component data, Wärtsilä scope of supply

8.4.1 Turbocharger cleaning device (5Z03)

Quantity 1

8.4.2 Exhaust gas bellows (5H01)

Quantity 2

Type Single

Length (mm) 280.0

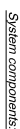
Connection (DN) 600

Counter flanges With

Dimensional drawing DAAB761895

8.5 Drawings

DAAR001516 -	Internal charge air and exhaust gas system	8-6
DAAB761895 b	5H01 - Exhaust gas bellows, dimensional drawing	8-7
2V37L0412 b	5Z03 - TC cleaning device	8-8



- 01 CHARGE AIR COOLER HT SECTION
- 02 CHARGE AIR COOLER LT SECTION
- 03 TURBOCHARGER
- 04 COMPRESSOR MANUAL CLEANING DEVICE
- 05 AIR FILTER AND SILENCER
- 07 TURBINE MANUAL CLEANING DEVICE
- 08 VALVE
- 09 SAFETY VALVE
- 10 INDICATOR VALVE
- 11 BY-PASS VALVE
- 12 EXHAUST GAS WASTE GATE VALVE




Sensors and indicators:

- TEMP14A EXHAUST GAS TEMPERATURE, °C, n
TEMP14ATM1A CYLINDER LINER TEMPERATURE, °C, n
TEMP15 EXHAUST GAS TEMPERATURE, °C, n
TEMP15T1 EXHAUST GAS TEMPERATURE, °C, n
TEMP15T2 EXHAUST GAS TEMPERATURE, °C, n
TEMP16 TC SPEED, n
TEMP17 CHARGE AIR PRESSURE, ENGINE INLET, n
TEMP18 CHARGE AIR TEMPERATURE, ENGINE INLET, n
TEMP19 EXHAUST WASTE GATE VALVE POSITION, n
GSS19C EXHAUST WASTE GATE VALVE CONTROL, n
GV64C CHARGE AIR BY-PASS VALVE POSITION, n
GV64C3C BYPASS POSITION, CLOSED
GV64C4C BYPASS POSITION, OPEN
T80020 2 CHANGE AIR FOR EXTERNAL GOVERNOR, ENGINE INLET

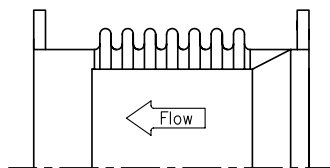
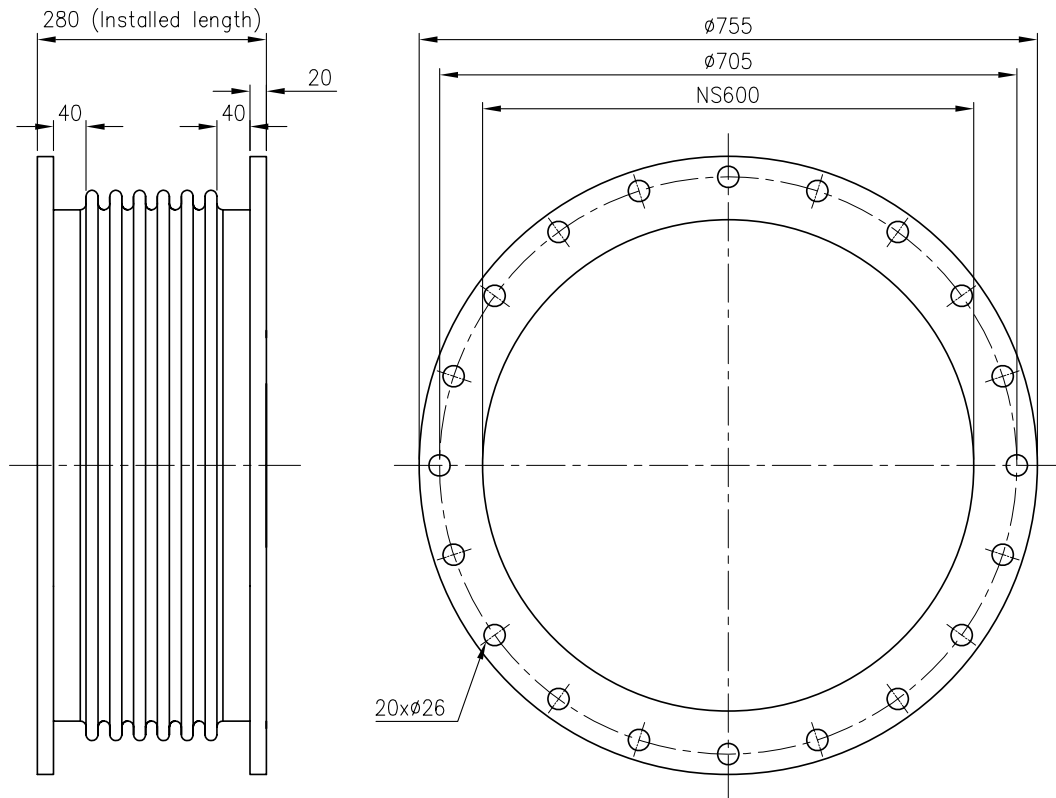
Pipe connections

- 501 EXHAUST GAS OUTLET
502 CLEANING WATER TO TURBINE
601 AIR INLET TO TURBOCHARGER
607 CONDENSATE DRAIN AFTER COOLER

INSTALLATION NAME	IDS NUMBER	ENGINE NUMBER
CMHI-078	M/03504, M11	PAAE202780
		PAAE202781

		Product W9L38		Internal exhaust gas system	
WÄRTSILÄ		Ship Power		CMH-078	
Units mm kg	ACA	 	Base Material —	Size A3	Page ./
Model P5.01.2010 DM0012		Scale —		Material ID DAR001516	Rev. —
Chd P5.01.2010 EDU003		Design Group 76A			
Appd P0.01.2010 KR0001					

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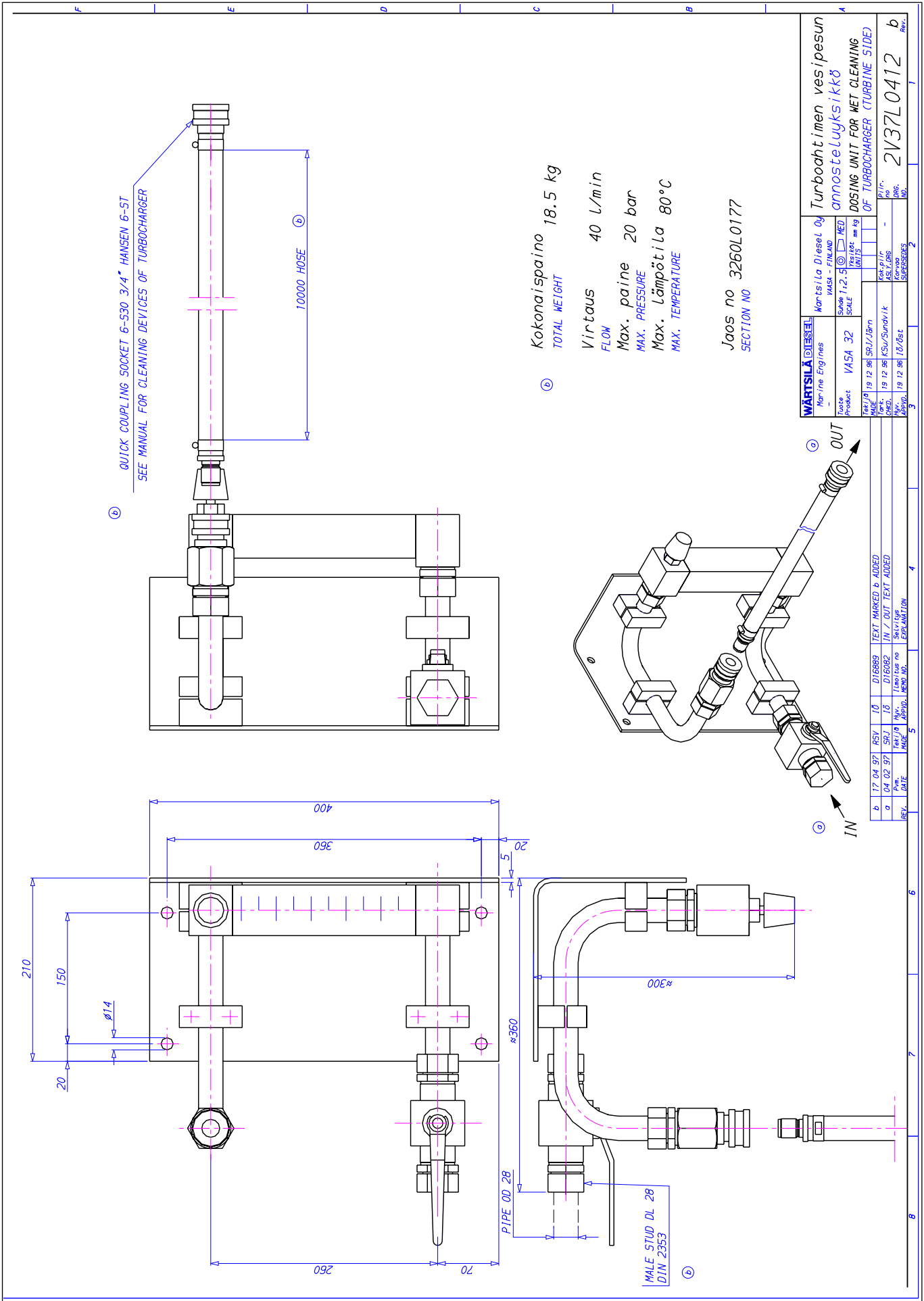


SPRING RATE	
AXIAL N/mm	LATERAL N/mm
102	2220

Weight: 56kg

b	20.08.2008	M.Storäng	L.Backlund	-	Drawing updated
REV.	DATE	MADE	APPVD.	MEMO NO.	EXPLANATION
		Wärtsilä Finland Oy Ship Power		5H01 - EXHAUST GAS BELLOW NS600 SINGLE	
PRODUCT		ACAD		UNITS mm kg	
MADE	10 07 2006	M.STORÄNG	DESIGN GROUP 60B		MAT.NO. xx-xx MAT.CLASS. 320-040-010
CHKD	01 08 2006	T.STÄHLBERG	SCALE SIZE		PAGES DRG.NO. DAAB761895 REV. b
APPD	11 07 2006	L.BACKLUND	1: 7,5 A4		-/-

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9. Piping Arrangements

9.1 Recommendations regarding piping design

Fuel, lubricating oil, fresh water and compressed air piping is usually made in seamless carbon steel (DIN 2448) and seamless precision tubes in carbon or stainless steel (DIN 2391), exhaust gas piping in welded pipes of corten or carbon steel (DIN 2458). Sea-water piping should be in Cunifer or hot dip galvanized steel.

NOTE! The pipes in the freshwater side of the cooling water system must not be galvanized!

Attention must be paid to fire risk aspects. Fuel supply and return lines shall be designed so that they can be fitted without tension. Flexible hoses must have an approval from the classification society. If flexible hoses are used in the compressed air system, a purge valve shall be fitted in front of the hose(s).

It is recommended to make a fitting order plan prior to construction.

The following aspects shall be taken into consideration:

- Pockets shall be avoided. When not possible, drain plugs and air vents shall be installed
- Leak fuel drain pipes shall have continuous slope
- Vent pipes shall be continuously rising
- Flanged connections shall be used, cutting ring joints for precision tubes

Maintenance access and dismounting space of valves, coolers and other devices shall be taken into consideration. Flange connections and other joints shall be located so that dismounting of the equipment can be made with reasonable effort.

9.1.1 Pipe dimensions

When selecting the pipe dimensions, take into account:

- The pipe material and its resistance to corrosion/erosion.
- Allowed pressure loss in the circuit vs delivery head of the pump.
- Required net positive suction head (NPSH) for pumps (suction lines).
- In small pipe sizes the max acceptable velocity is usually somewhat lower than in large pipes of equal length.
- The flow velocity should not be below 1 m/s in sea water piping due to increased risk of fouling and pitting.
- In open circuits the velocity in the suction pipe is typically about 2/3 of the velocity in the delivery pipe.