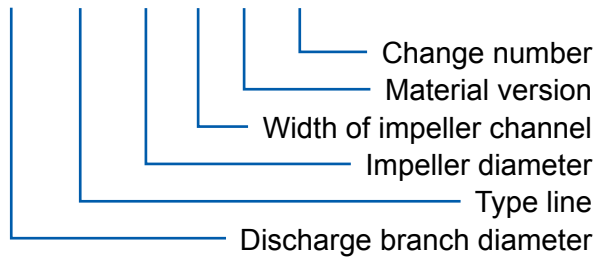


QHD
Booster pumps

BOOSTER PUMPS QHD

PUMP DESIGNATION

200-QHD-460-44-UC-000



OPERATION-TECHNICAL DATA

Flow	Q	40–1500	l/s
Head	H	45–170	m
Water temp.	t	max. 200	°C
Speed	n	1480	rpm

APPLICATION

QHD booster pumps are intended for pumping of clean feedwater without mechanical impurities and max. temperature of 200°C. Booster pumps are essential components of feedwater units within steam power plant units, creating sufficient suction head for main feedwater pumps.

DESIGN

QHD pumps are designed as centrifugal, horizontal-split with double discharge volute and double-entry impeller. Hydraulic part of the pump is sealed through seals.

BEARINGS

Different rotor bearings are used based on pump size. The rotor of 200-QHD version is bilaterally laid in roller bearings. Rotors of 250-QHD, 300-QHD and 400-QHD versions are bilaterally laid in journal plain bearings.

THRUST FORCE BALANCING

Residual thrust forces are absorbed through bilateral roller thrust bearing. By the 400-QHD size the thrust force is absorbed through bilateral segment bearing.

BEARING TYPES, LUBRICATION

Pump type	Bearing type		Mazání
	Journal	Thrust	
200-QHD	roller	roller	ring
250-QHD	plain	roller	pressure
300-QHD	plain	roller	pressure
400-QHD	plain	segment	pressure

SEALS

For pump rotor sealing inside the stator, mechanical seals are used. Seals are cooled through inlet of cooling water to stationary seals seats and through cooling of seal chambers inside seal housings. The 200-QHD version is also available with rope seals.

BRANCH ORIENTATION

Following design layout of the whole feedwater unit, the QHD pumps may have branches S-0°, T-0° (e.g. upwards) or S-180°, T180° (e.g. downwards). The 400-QHD version is of atypical design with branches S-0°, T180°.

FLANGES

In preference as per EN 1092-1 standard. Flanges following other standards have to be specified within the order.

DRIVES

QHD pumps are typically integrated into feedwater units. This fact then determinates the QHD drive: direct by electric motor or through a gearbox, gear regulation coupling, turbine with gearbox or similar.

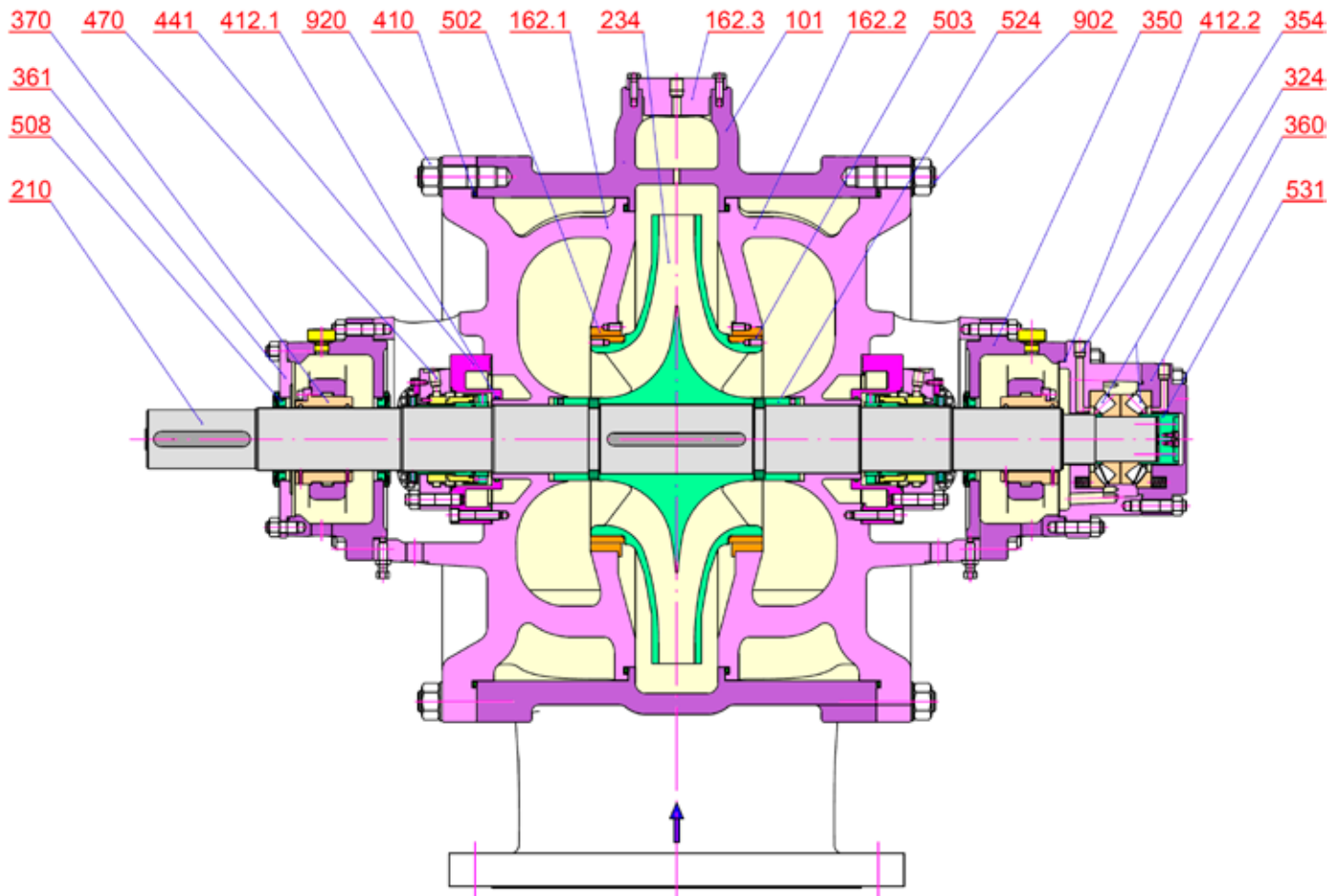
SENSE OF ROTATION

Booster pumps QHD are in default version designed as clock-wise rotating from drive's view. Reverse sense of rotation possible only after approval by the pump manufacturer.

CERTIFICATION

QHD pumps follow design certification as per EN ISO 9001, QA: 041005278.

QHD PUMP CROSS SECTION DRAWING



Pump material version UC

Position	Item name	Material
101	Pump casing	1.0625
162.1	Casing cover - front	1.4008
162.2	Casing cover - rear	1.4008
162.3	Casing plug	1.4021
210	Shaft	1.4313
234	Impeller	1.4317
324	Thrust bearing	ocel
350	Journal bearing housing	1.0619
354	Thrust bearing housing	1.0038
360	Thrust bearing cover	1.0038
361	Journal bearing cover	1.0038
370	Journal bearing	1.0050

Position	Item name	Material
410	Variseal sealing	T24S
412.1	Gasket ring	EPDM 80
412.2	Gasket ring	622446.07
441	Sealing housing	1.4404
470	Mechanical seal	1.4404 + Uhlík
502	Wearing ring	3346.9
503	Impeller ring	3347.9
508	Packing PRO-TECH	Uhlík + FKM
524	Shaft bushing	17 029
531	Thrust bearing end-cover	1.0038
902	Connecting screw	1.5122
920	Nut	1.5122

Pump casing with double-discharge volute

For hydraulic space sealing a profil packing is used

Mechanical seal in API plan 02 installation

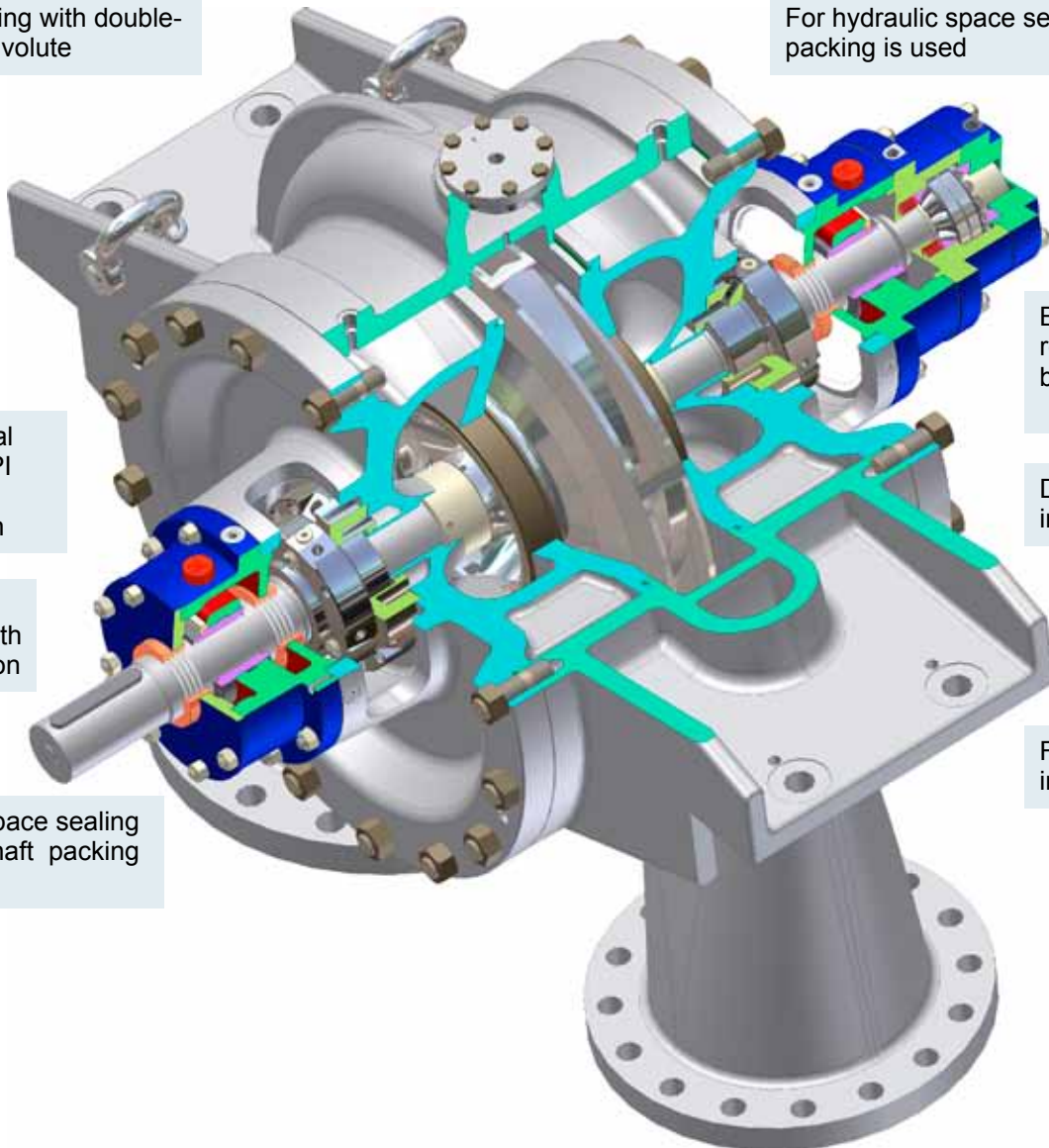
Bilateral roller thrust bearing

Journal bearing with composition

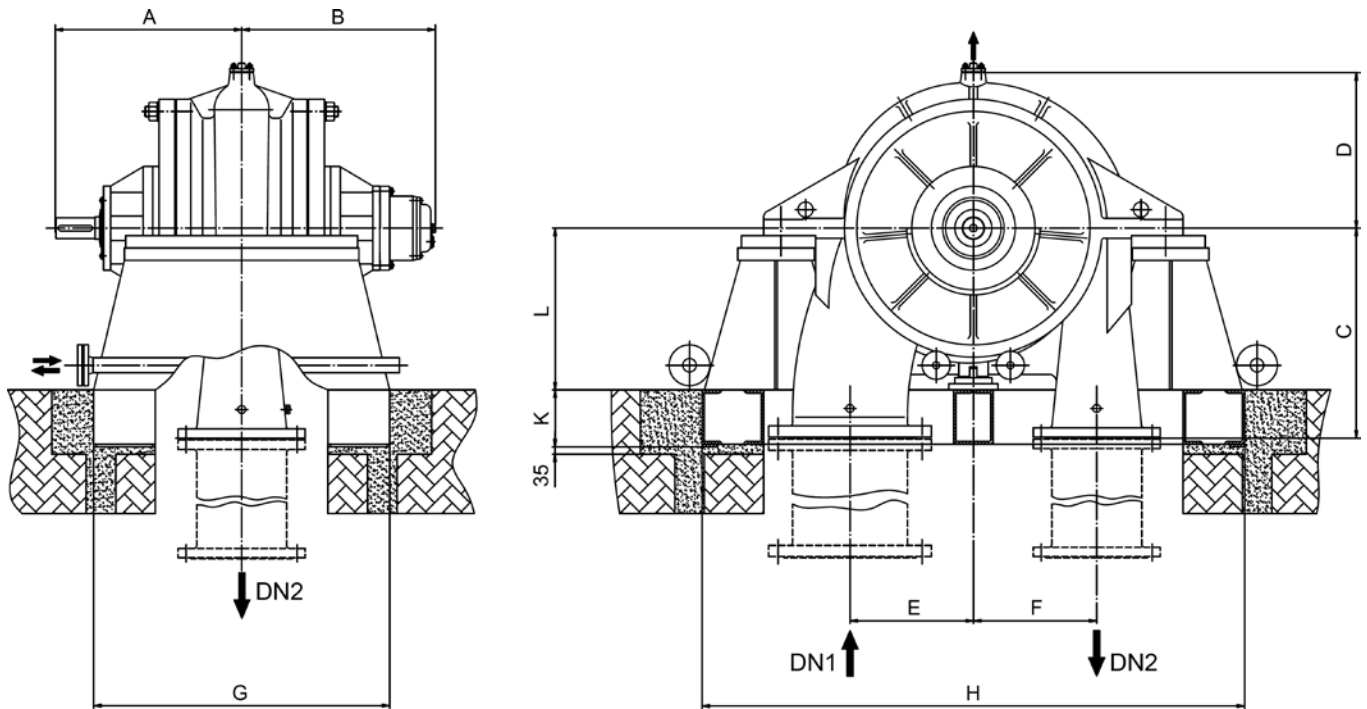
Double-entry impeller

Bearing space sealing through shaft packing pro-tech

Feet aligned in pump axis

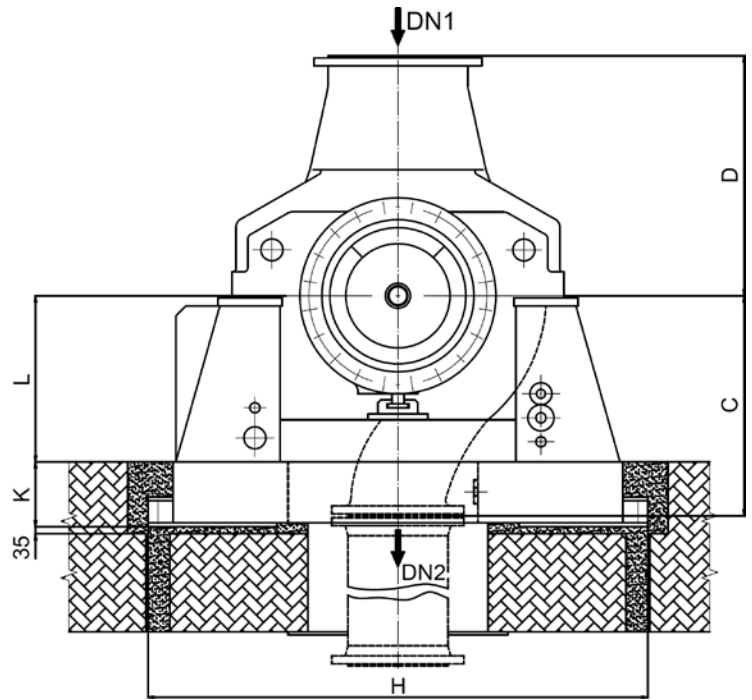
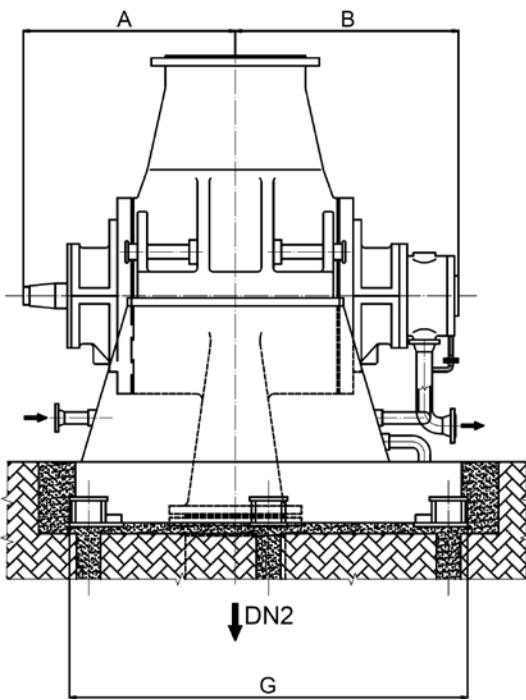


PUMP DIMENSIONS 200-QHD, 250-QHD, 300-QHD



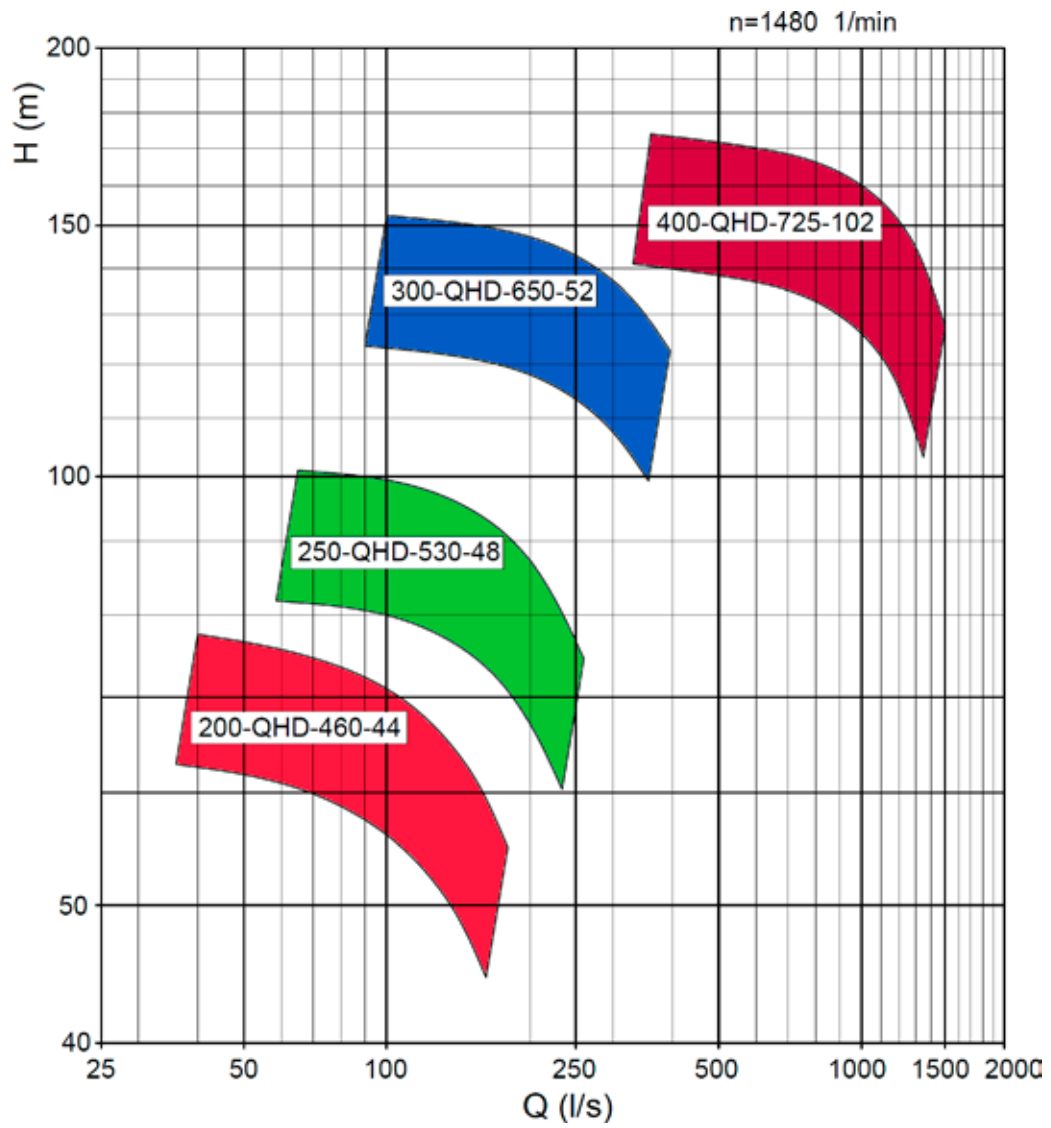
PUMP TYPE	DN1	DN2	A	B	C	D	E	F	G	H	K	L	m [kg]
200-QHD	300	200	795	688	560	390	265	300	960	1680	180	485	2300
250-QHD	350	250	794	836	650	440	300	340	1300	1600	195	515	2900
300-QHD	400	300	770	740	650	530	350	430	1150	1900	200	505	2800

PUMP DIMENSION 400-QHD



PUMP TYPE	DN1	DN2	A	B	C	D	E	F	G	H	K	L	m [kg]
400-QHD	600	400	1060	1115	1100	1200	-	-	1990	2500	325	830	9900

PERFORMANCE DIAGRAM





Booster pump 300-QHD, Coal-Fired Power Plant Ledvice (CZ)



SIGMA GROUP a. s.
Jana Sigmunda 79
783 49 Lutín, Česká republika
+420 585 652 011, +420 585 652 060
+420 585 652 051, +420 585 944 294
info@sigma.cz
2014

www.sigma.cz