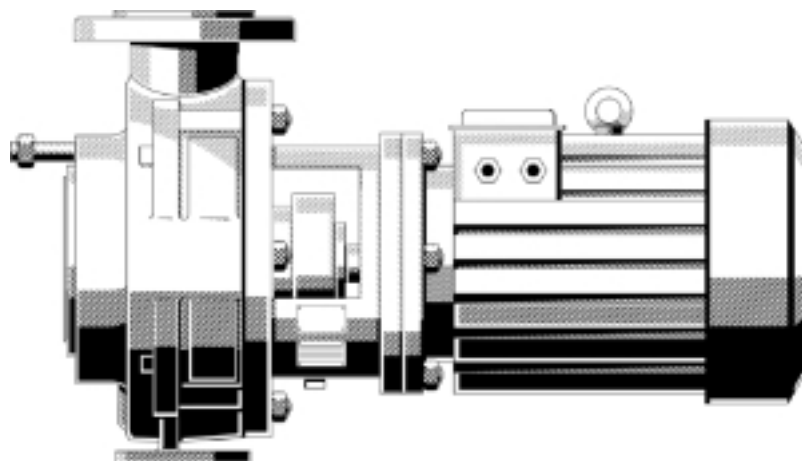


Chemical pump with plastic liner in close-coupled design



Fields of Application

Tyachem-Bloc pumps are used for handling highly aggressive, corrosive and abrasive media in the chemical industry and in process engineering. The Tyachem product line is an excellent alternative in all sectors where only high-cost stainless steel alloys ensure sufficient service lives.

High resistance to chemicals and wear resistance are distinguishing features of this product line.

Design

Horizontal, radially split centrifugal pump in close-coupled design, with stub shaft, with radial impeller, single-flow, single-stage.

The hydraulic system and casing dimensions are identical with those of the standardised chemical pump Tyachem with plastic liner.

Replaceable casing liner.

Operating data

Pump sizes	DN	25 to 50
Capacities	Q	up to 85 m ³ /h
Heads	H	up to 58 m
Operating pressures	p	up to 16 bar
Operating temperatures	t	-40 to +150 °C

Materials

All wetted components are made of plastics.

The adequate type of plastic material is selected on the basis of the

- mechanical
- chemical and
- thermal

load conditions.

The following plastic materials are used:

E =	PE-UHMW -	polyethylene of ultrahigh molecular weight
T =	PFA	- perfluoro-alkoxyalkane

Designation

Type series	Tyachem - Bloc	E	32 - 200
Close-coupled design			
Material code			
Discharge nozzle DN			
Nominal impeller diameter in mm			

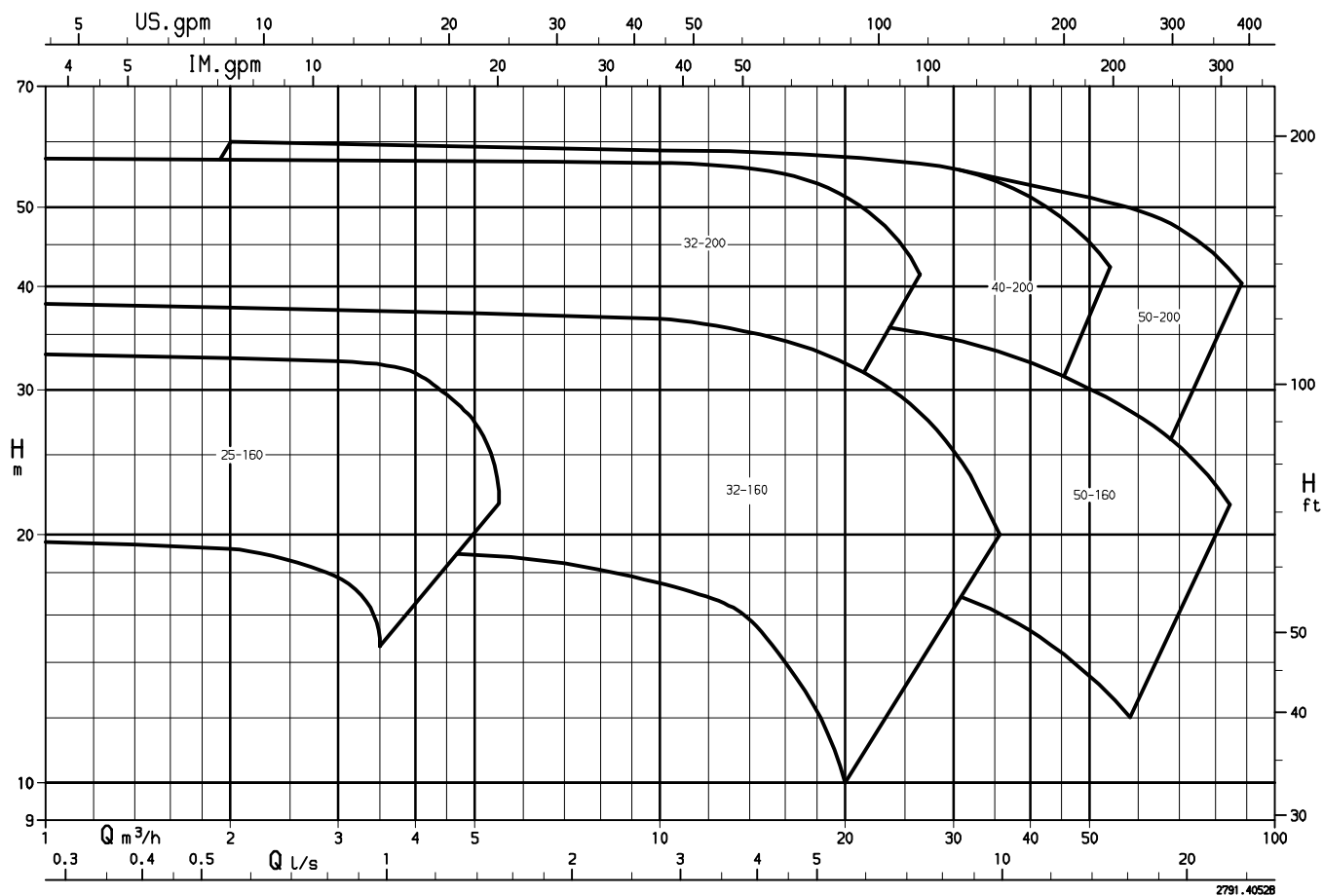


General Member of

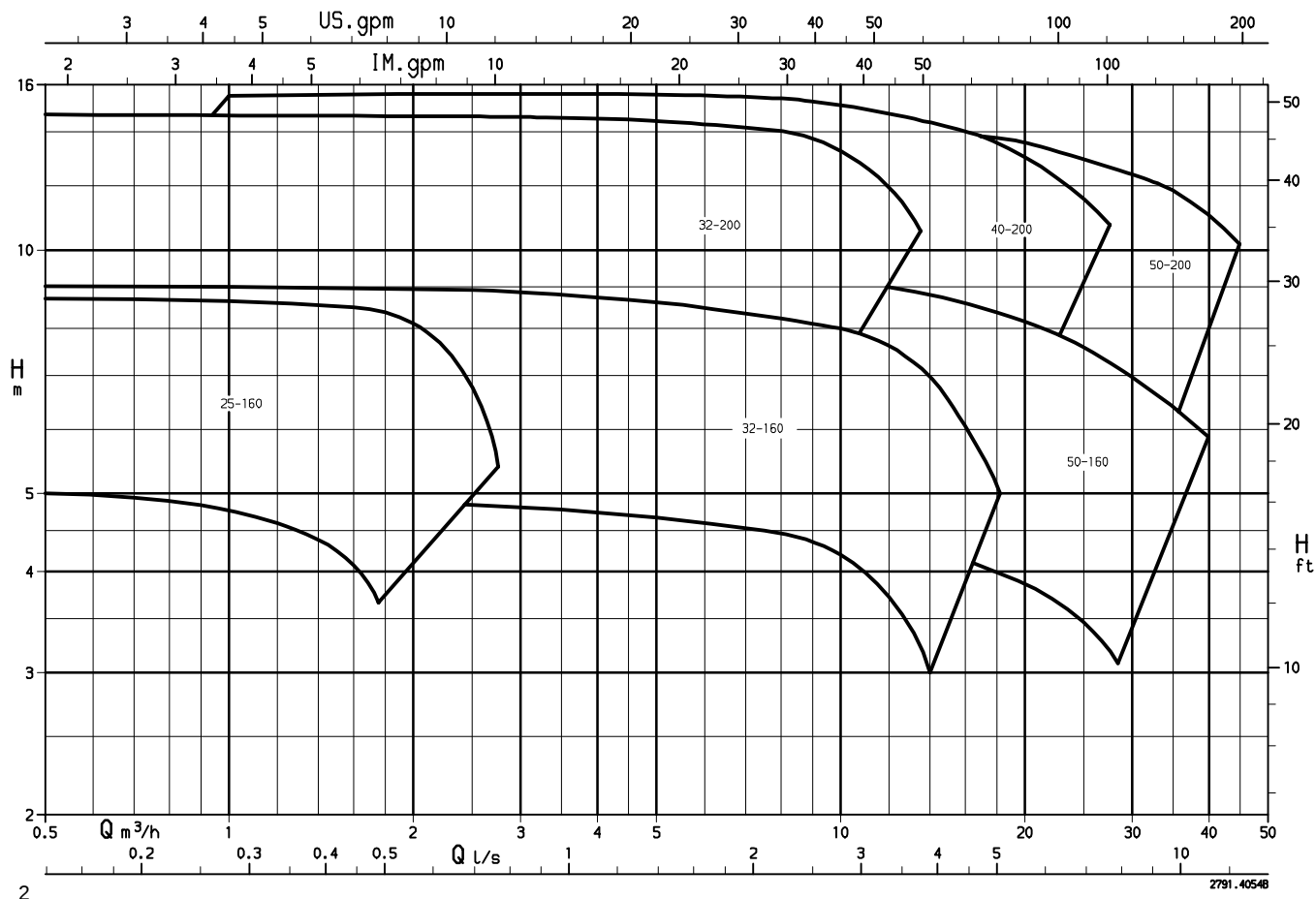


Selection Charts

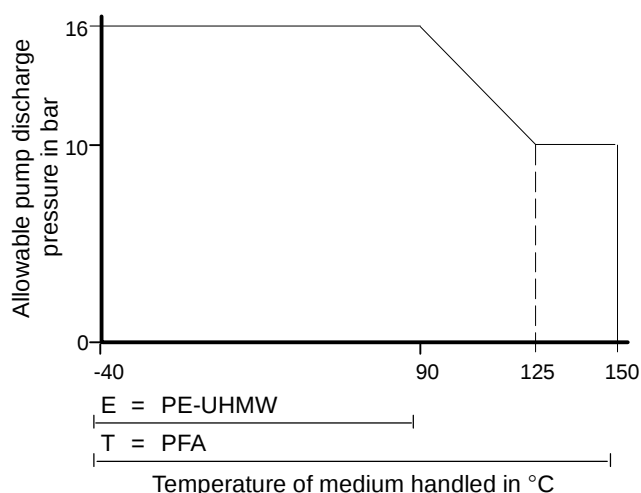
$n = 2900 \text{ 1/min}$



$n = 1450 \text{ 1/min}$



Pressure and Temperature Limits



Materials

Part No.	Description	Standard materials	
		E PE-UHMW	T PFA
103	Circular casing	JS 1025 1)	JS 1025 1)
13-6	Casing insert	PE-UHMW	PFA
163	Discharge cover	JS 1025 1)	JS 1025 1)
167	Cover insert	PE-UHMW	PFA
210	Shaft	1.4057+QT800	1.4057+QT800
230	Impeller	PE-UHMW	PFA
341	Drive lantern	JL 1040 2)	JL 1040 2)
412	O-ring	EPDM,FKM,FFKM	EPDM,FKM,FFKM
471	Seal cover	1.4571	1.4571
473	Spring-loaded ring holder	SSiC	SSiC
523	Shaft sleeve	PE-UHMW	PFA
902	Stud	A4 - 70	A4 - 70
920	Hex. nut	A4	A4

1) GJS-400-18-LT to EN 1563

2) GJL-250 to EN 1561

Technical Data

		Pump sizes						
		Unit	25-160	32-160	32-200	40-200	50-160	50-200
Impeller	outlet width	mm	5	9,0	7,0	9,0	15,0	13,0
	inlet width	mm	40	60	60	76	90	90
	max. diam.	mm	160	169	209	209	169	209
	min. diam.	mm	see individual performance curve					
Mech. seal diam.		mm	28	40				
Pressure limit	max. oper. pressure	bar	see diagram					
	max. test pressure	bar	1.5 x max. allow. pump discharge pressure					
Temp. limits	max. product temp.	°C	see diagram					
Drive	P/n values		0.0076					
	max. motor power at n = 1450 1/min	kW	11					
	= 1750 1/min	kW	13					
	= 2900 1/min	kW	22					
	= 3500 1/min	kW	26					

Recommended Spare Parts Stock for Two Years' Operation

Part No.	Description	Number of pumps (incl. standby pumps)						
		2	3	4	5	6/7	8/9	10 and more
		Quantity of spare parts						
101	Pump casing ¹⁾	-	-	-	-	-	1	2
103	Circular casing ²⁾	-	-	-	-	-	1	2
13-6	Casing insert	1	1	1	2	2	2	20 %
167	Cover insert	1	1	1	2	2	2	20 %
210	Shaft	1	1	1	2	2	2	20 %
230	Impeller	1	1	1	2	2	2	20 %
433	Mechanical seal, cpl.	1	1	2	2	2	3	25 %
523	Shaft sleeve	2	2	2	3	3	4	50 %
---	Gaskets for pump casing (set)	4	6	8	8	9	12	150 %

1) only pump size 25-160

2) not for pump size 25-160

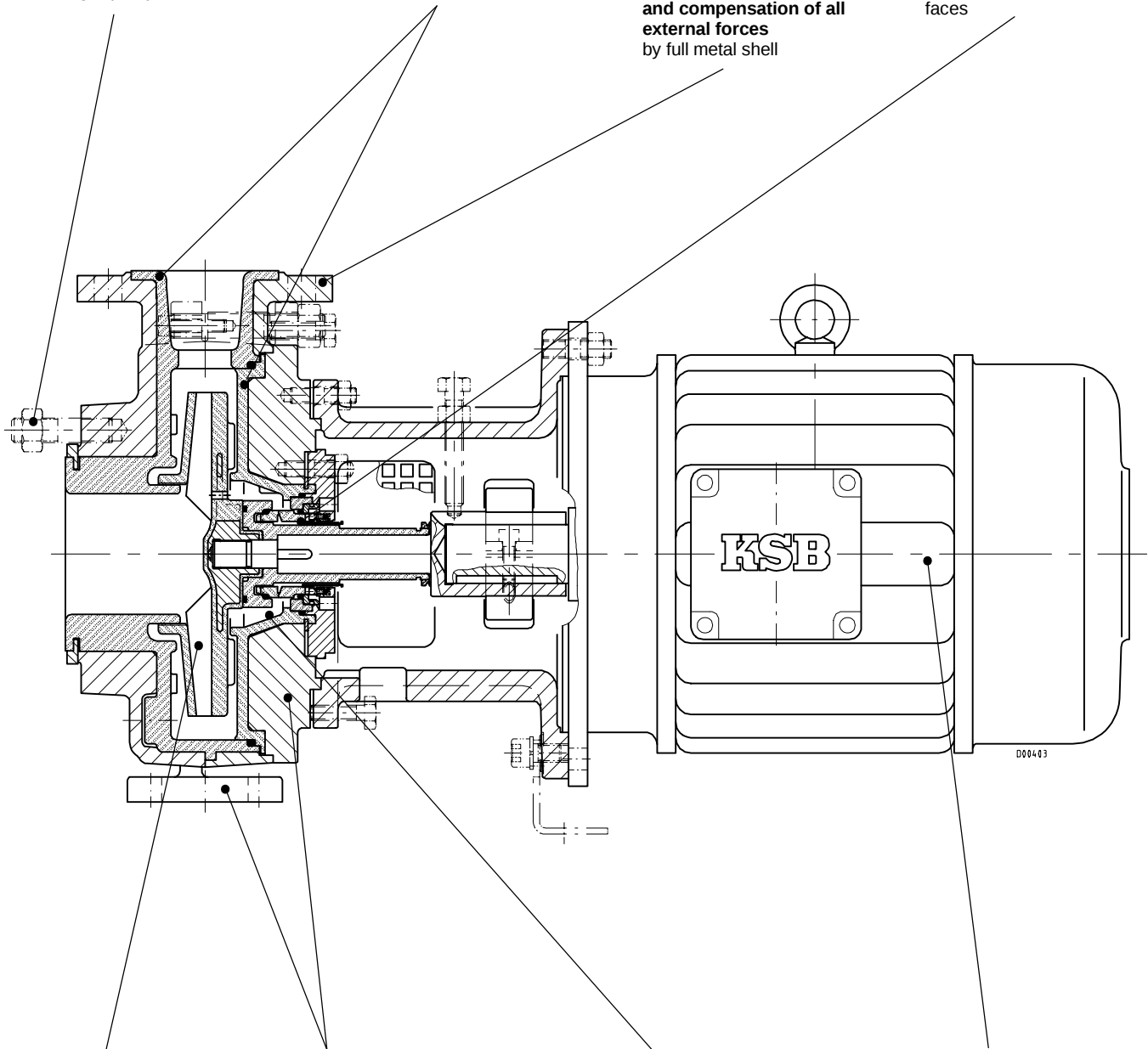
Tyachem-Bloc at a Glance

Corrosion-resistant nuts and bolts
due to high-quality material

Maintenance-friendly:
Plastic liners replaceable at site, back pull-out design

Mechanical protection of plastic components, high compressive strength and compensation of all external forces
by full metal shell

Universal application
due to high-quality mechanical seal with SIC-SIC seal faces



High efficiencies and low NPSH requirements
due to closed plastic impeller

Small stock of spare parts
due to modular design concept

Long service life even with solids-laden media
due to optimum hydraulic design of pump casing

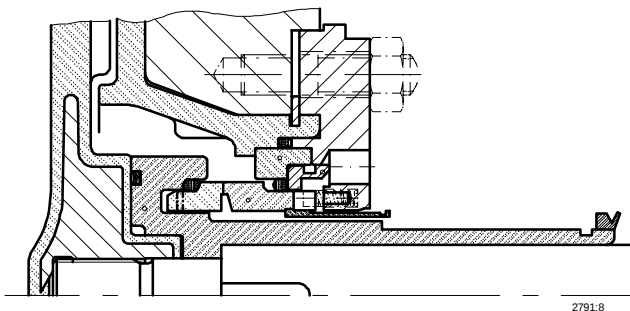
Standardised motor
design B5 or B3/B5

Balancing

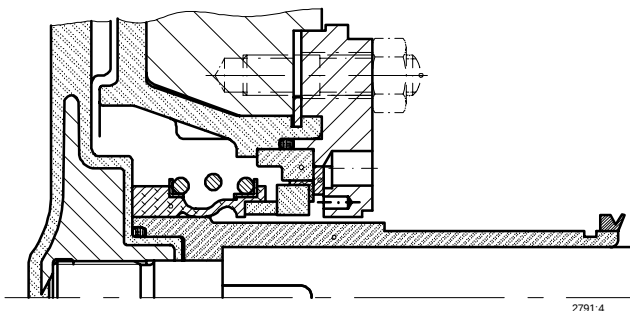
Axial thrust is balanced by back vanes.

Shaft seal

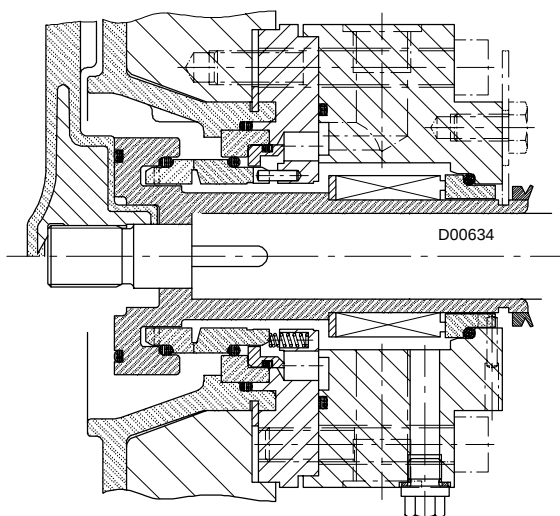
The mechanical seal housing of the Tyachem-Bloc type series is designed for the use of mechanical seals by different manufacturers. Single-acting or double-acting mechanical seals (not for pump size 25-160) will be fitted, depending on the application and the physicochemical properties of the medium handled.



Single-acting mechanical seal, stationary spring-loaded element, balanced, internal (standard design)



Single-acting mechanical seal, rotating spring-loaded element, unbalanced



Double-acting mechanical seal with non-pressurised or pressurised sealing medium (not for pump size 25-160)

Acceptance Tests / Guarantees

Each pump is subjected to a performance test run, and its duty point is guaranteed according to DIN 1944/III.

The following acceptance test may be performed and certified at extra charge:

Test run DIN 1944/III

5 measuring points

Guarantees are given within the scope of the valid delivery conditions.

Coating and Preservation

(acc. to works standard AN 1865)

Key:

Treatment of unmachined parts

(castings only)

Coating - wetted parts

Coating - accessories, bearing bracket, baseplate

Coating - motor

Preservation

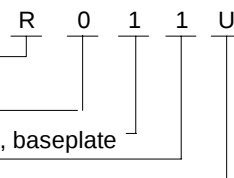
R = reaction primer

0 = without primer coat and top coat

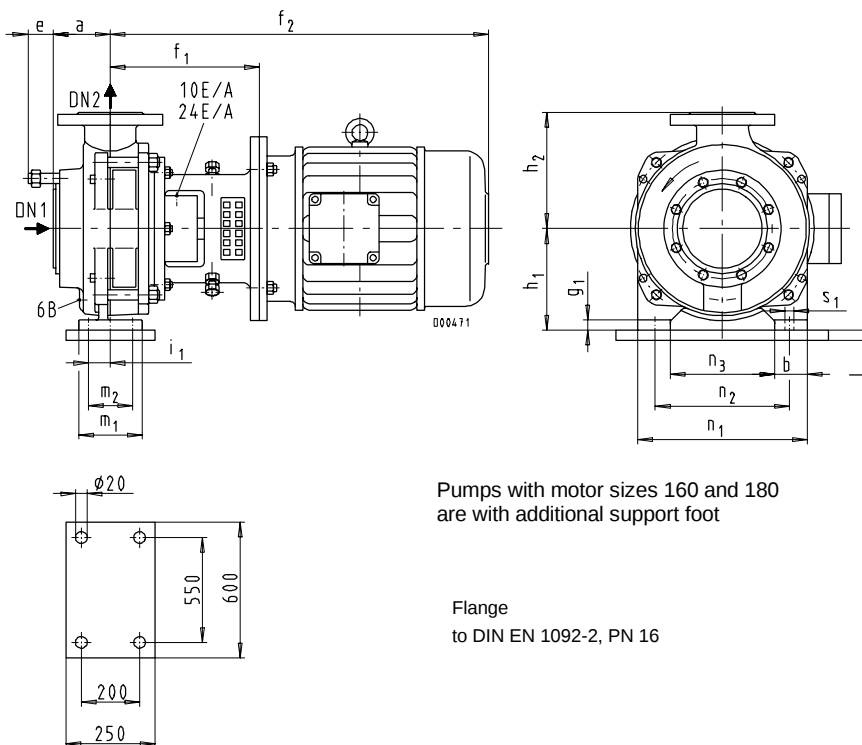
1 = synthetic enamel RAL 5002, ultramarine blue

U = untreated

Special coating available at extra charge.



Dimensions



Pumps with motor sizes 160 and 180
are with additional support foot

Flange
to DIN EN 1092-2, PN 16

Pump dimensions

Connections

Dimensions in mm

Pump size	Pump dimensions															Connection		Description
	DN ₁	DN ₂	a	b	e	g ₁	h ₁	h ₂	i ₁	m ₁	m ₂	n ₁	n ₂	n ₃	s ₁			
25-160	40	25	51	47.5	42	13	112	140	35	64	-	185	140	90	14	6 B ⁵⁾	Ø 20	Casing drain
32-160 ¹⁾	50	32	80	50	42	13	132	160	35	100	70	240	190	140	14	10 E	G 1/4	Sealing liquid inlet
32-200 ²⁾	50	32	80	50	42	16	160	180	35	100	70	240	190	140	14	10 A	G 1/4	Sealing liquid outlet
40-200 ²⁾	65	40	100	50	42	16	160	180	35	100	70	265	212	165	14	24 E	G 1/4	Quench liquid inlet
50-160 ²⁾	80	50	100	50	42	16	160	180	35	100	70	265	212	165	14	24A ⁶⁾	G 1/4	Quench liquid outlet
50-200 ²⁾	80	50	100	50	42	16	160	200	35	100	70	265	212	165	14			

Pump size	for motors						for motors ⁴⁾									
	up to 112M	Weight ³⁾	132	Weight ³⁾	160M and above	Weight ³⁾	90S	90L	100L	112M	132S	132M	160M	160L	180M	180L
	f ₁	kg	f ₁	kg	f ₁	kg	f ₂	f ₂	f ₂	f ₂	f ₂	f ₂	f ₂	f ₂	f ₂	f ₂
25-160	137	20	-	-	-	-	419	419	449	472						
32-160 ¹⁾	211	38	235	42	265	48	493	493	523	546	610					
32-200 ²⁾	211	46	235	50	265	56	493	493	523	546	610	610	746			
40-200 ²⁾	211	48	235	52	265	58	493	493	523	546	610	610	746	746	875	
50-160 ²⁾	211	50	235	54	265	60	493	493	523	546	610	610	746	746		
50-200 ²⁾	211	56	235	60	265	66	493	493	523	546	610	610	746	746	875	875

- 1) Mounting plate required for motor 132
2) Mounting plate required for motors 160 and 180
3) Weight without motor

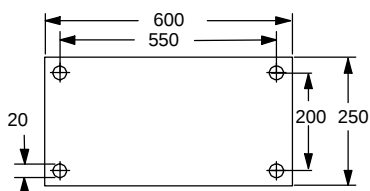
- 4) Motor dimensions refer to design B5, max. overall length (make Siemens)
5) Not on standard design (not possible on pump size 25-160)
6) Only for one-way quench (closed on dead end variant)

Mounting plate

(not generally included in KSB's scope of supply; see ¹⁾ and ²⁾)

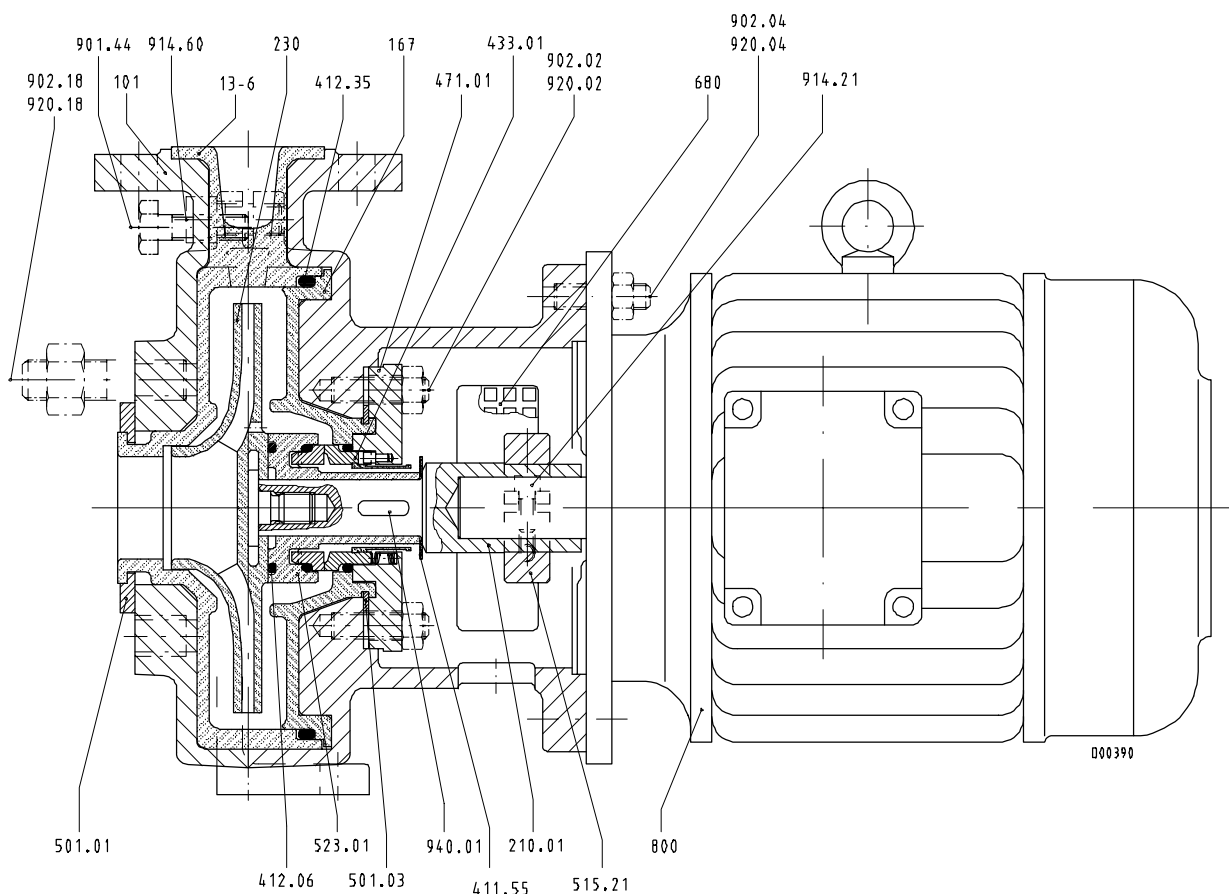
Height I: 25 mm

Weight: 24 kg



General Drawing with List of Components

Pump size 25-160

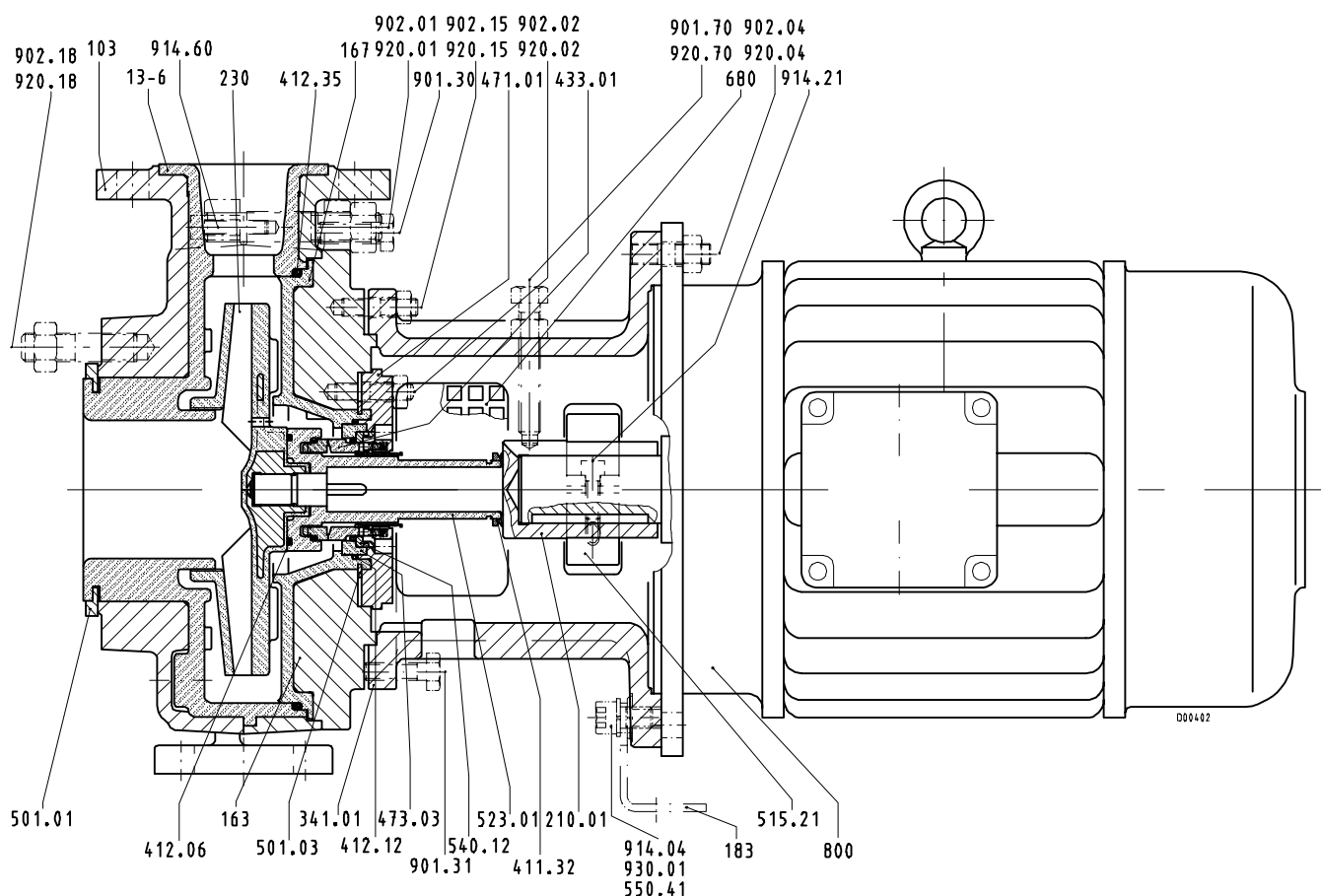


When ordering spare parts please always specify the type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., part description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Part description	Scope of supply
101	Pump casing	with casing insert 13-6, O-ring 412.35, ring (segmental) 501.01/.03, hex. head bolt 901.44, stud 902.02/.04/.18, socket head cap screw 914.60, hex. nut 920.02/.04/.18
167	Cover insert	
210.01	Shaft	with taper lock ring 515.21, socket head cap screw 914.21, key 940.01
230	Impeller	with O-ring 412.06
433.01	Mechanical seal, cpl.	
471.01	Seal cover	with stud 902.02, hex. nut 920.02
523.01	Shaft sleeve	with disk 411.55, O-ring 412.06
680	Guard	
800	Motor cpl.	

General Drawing with List of Components

Pump sizes 32-160 to 50-200



When ordering spare parts please always specify the type series/ pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., part description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Part description	Scope of supply
103	Circular casing	with casing insert 13-6, O-ring 412.35, ring (segmental) 501.01, stud 902.01/.18, socket head cap screw 914.60, hex. nut 920.01/.18
163	Discharge cover	with cover insert 167, O-ring 412.35, ring (segmental) 501.03, hex. head bolt 901.30, stud 902.15, hex. nut 920.15
183	Support foot ¹⁾	with disc 550.41, socket head cap screw 914.04, safety device 930.01
210.01	Shaft	with taper lock ring 515.21, socket head cap screw 914.21
230	Impeller	with O-ring 412.06
341.01	Drive lantern	with guard 680, hex. head bolt 901.31/.70, stud 902.04, hex. nut 920.04/.70
433.01	Mechanical seal, cpl.	
471.01	Seal cover	with O-ring 412.12, stud 902.02, hex. nut 920.02
473.03	Spring-loaded ring holder	with bush 540.12
523.01	Shaft sleeve	with V-ring 411.32, O-ring 412.06
800	Motor cpl.	

1) if applicable

Subject to technical modifications.

d/4

XBS

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