Submersible Sewage Pump Type ABS XFP 105J - 600X

SULZER
50 Hz

Submersible sewage pump type ABS XFP is designed for municipal and industrial wastewater, equipped with a Premium Efficiency IE3-level motor. Suitable for clean water and wastewater, sewage with sludge and high rag content, solids, and fibrous material.

Construction

- Premium Efficiency IE3 motors in accordance with IEC 60034-30. Testing in accordance with IEC60034-2-1.
- Premium Efficiency motors designed for VFD operation in accordance with IEC/TS 60034-25 A (U_{peak}< 1300 V).
- The water-tight fully flood-proof motor and the pump section form a compact and robust unit, easy to clean and easy to service.
- Water pressure sealed connection chamber, with two-stage cable entry, protected against excessive cable tension and bending.
- Bimetallic thermal sensors in the stator that open at 140 °C.
- Rotor and shaft are dynamically balanced.
- Upper and lower bearings lubricated-for-life, maintenance-free.
- Insulated upper bearing for VFD operation, standard for PE6, and optional for PE5.
- Triple shaft sealing.
- Upper and lower sealing by means of a silicon carbide/silicon carbide mechanical seal, independent of the direction of rotation.
- Inspection chamber with moisture sensor to indicate water leakage through mechanical seal (PE4 - PE6).
- Option: blockage- and maintenance-free internal closed looped cooling system.
  Cooling medium: glycol/water mixture (standard for PE6 range).
- Hydraulic parts with various impeller options: 2-or 3-channel Contrablock, 2-or 3-channel closed, or 3-channel skew.
- ATEX explosion-proof version in accordance with international standards e.g. ATEX II 2G Ex db IIB T4 Gb, FM or CSA (Ex as standard with PE3, optional with PE4 - PE6).

Motor

Water pressure sealed Premium Efficiency motors, (3-phase, squirrel cage induction motors), from 18.5 to 250 kW, and depending on hydraulic requirements as 4- to 10-pole versions.
Voltage: 380...420 V, 3~, 50 Hz (other voltages on request).
Insulation components: Class H (winding protection by 140 °C sensor)
Temperature rise: According to NEMA class A up to 110 kW and class B above.
Protection type: IP68
Start-up: DOL (direct on line), star-delta, VFD or soft starter.

Pump selection

To access more detailed information like pump performance curves, dimensional drawings, product description and motor performance curves, please use our ABSEL program:
https://absel.sulzer.com/
Hydraulic selection
-> Enter: Duty point
-> Select: Hydraulics
-> Select: Motor

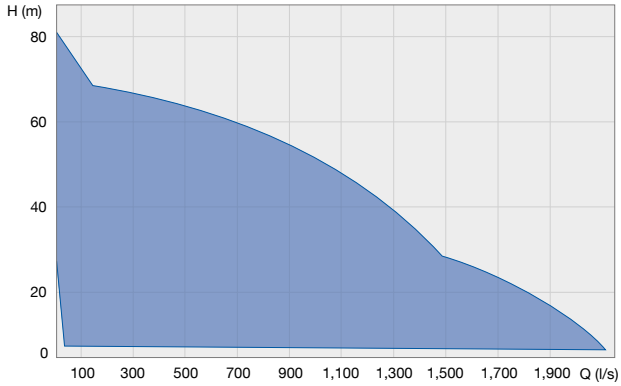
Hydraulics

You have the choice of the following hydraulics in the range of DN 100 to DN 600 discharge:

Hydraulics / Impeller type			
XFP 105J	CB2	XFP 150M	CB2
XFP 155J	CB2	XFP 151M	CB2
XFP 205J	CB2	XFP 205M	CB2
XFP 206J	CB2	XFP 250M	CH2
XFP 255J	CB2	XFP 305M	CB2
XFP 305J	CB2	XFP 306M	CB2
		XFP 351M	CH3
		XFP 405M	CB2
		XFP 400R	CH3
		XFP 500U	CH3
		XFP 501U	SK3
		XFP 600V	CH3
		XFP 600X	SK3

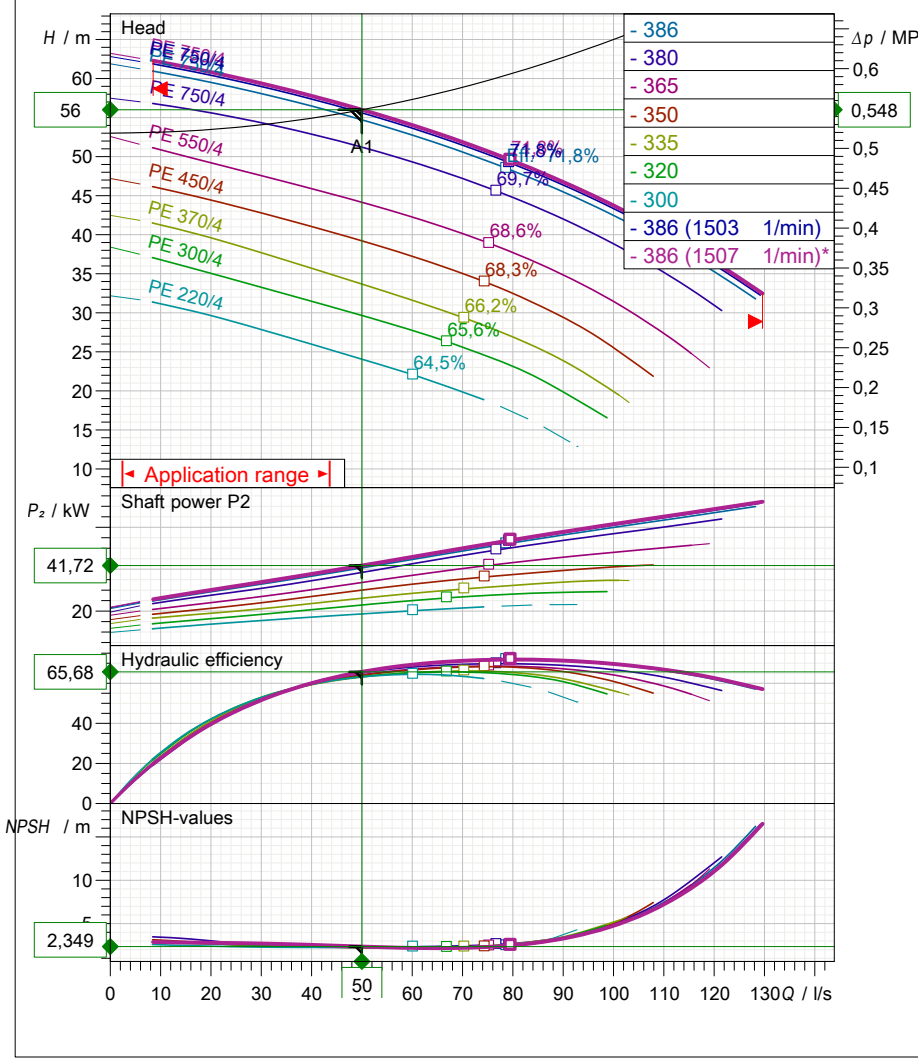
CB... = Contrablock, CH...= closed channel, SK...= skew; last digit (2 or 3) = Number of impeller vanes

Performance field



H = Total Head; Q = Discharge Volume

XFP 105J-CB2 50 HZ



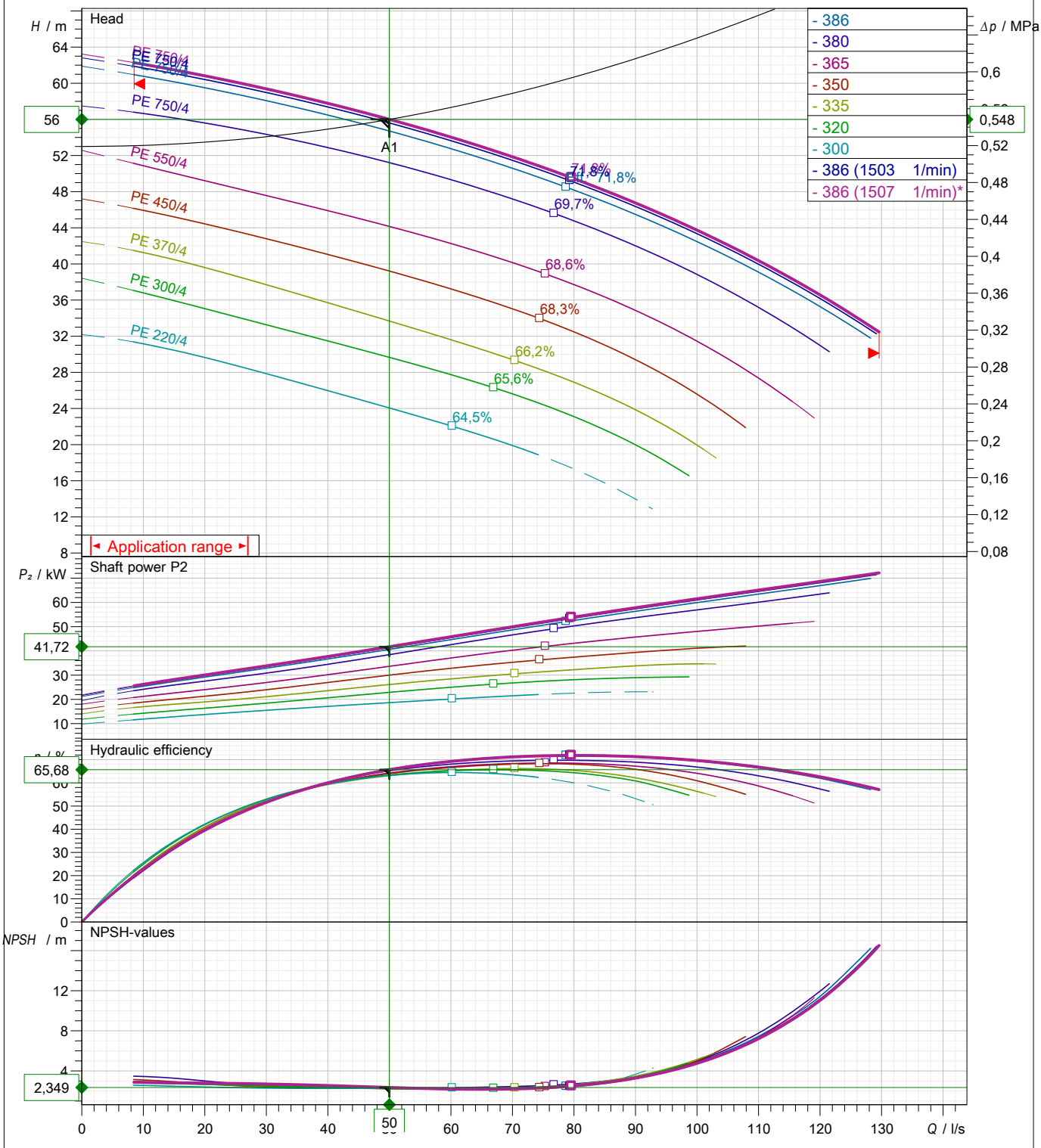
Testnorm
ISO9906:2012,HI 11.6/14.6 Gr2B

2021-02-23

Operating data specification			
Flow	50 l/s	Power input	44 kW
Efficiency	65,7 %	Head	56 m
NPSH	2,35 m	Rated power	41,7 kW
Temperature	20 °C	Fluid	Water
No. of pumps	1	Nature of system	Single head pump
Pump data			
Type	XFP 105J-CB2 50 HZ	Make	SULZER
Series	XFP PE4-PE7	Impeller	Contrablock Plus impeller
N° of vanes	2	Impeller size	386 mm
Free passage	75 x 100 mm	Suction flange	DN150
Discharge flange	DN100	Type of installation	wet well vertical installation 2"
Moment of inertia	0,516 kg m²		
Motor data			
Rated voltage	400 V	Frequency	50 Hz
Rated power P2	75 kW	Nominal Speed	1480 1/min
Number of poles	4	Efficiency	95 %
Power factor	0,869	Rated current	131 A
Starting current	1170 A	Rated torque	484 Nm
Starting torque	1400 Nm	Degree of protection	IP 68
Insulation class	H(140)	No. starts per hour	15

Curve number	Pump performance curves	SULZER
Reference curve XFP 105J-CB2 50 HZ	**XFP 105J-CB2 50 HZ**	

					Discharge	Frequency
					DN100	50 Hz
Density	Viscosity	Testnorm			Rated speed	Date
998,3 kg/m³	1,005 mm²/s	ISO9906:2012,HI 11.6/14.6 Gr2B			1507 1/min	2021-02-23
Flow	Head	Shaft power	Power input	Rated power P2	Hydraulic efficiency	NPSH
50 l/s	56 m	41,7 kW	44 kW	75 kW	65,7 %	2,35 m



Impeller size	N° of vanes	Impeller	Solid size	Revision
386 mm	2	Contrablock Plus impeller	75 x 100 mm	

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Data version June 2020

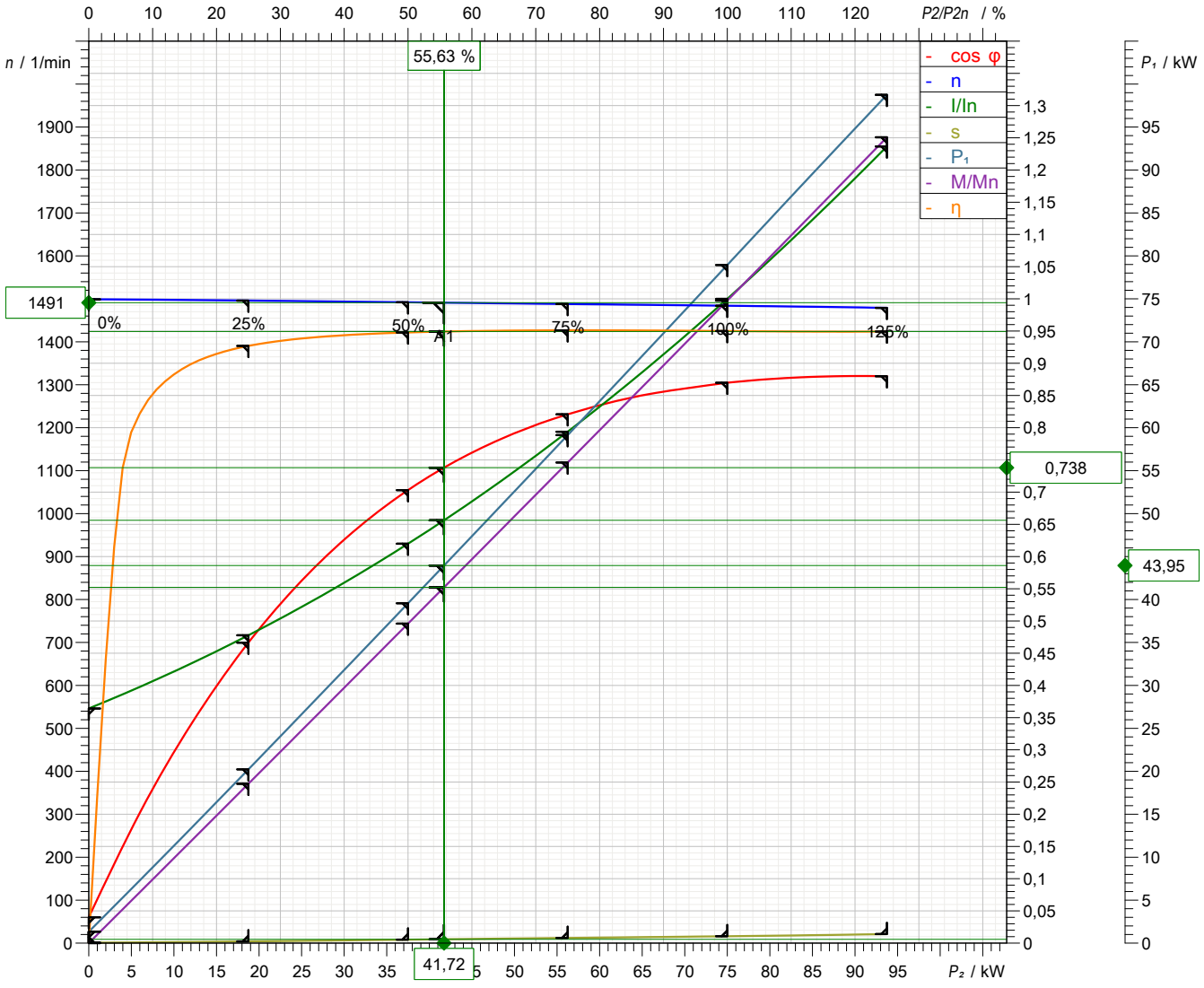
Frequency	PE5
50 Hz	

Motor performance curve

PE 750/4

SULZER

Rated power	Service factor	Nominal Speed	Number of poles	Rated voltage	Date
75 kW	1	1480 1/min	4	400 V	2021-02-23



Symbol	No load	25 %	50 %	75 %	100 %	125 %
P_2 / kW	0	18,75	37,5	56,25	75	93,75
P_1 / kW	1,326	20,23	39,56	59,14	78,94	98,75
η / %	0	92,7	94,79	95,12	95	94,93
n / 1/min	1499	1496	1492	1488	1484	1479
cos φ	0,04012	0,4664	0,7032	0,8208	0,8698	0,8799
I / A	47,7	62,59	81,21	104	131	162
s / %	0,06667	0,2667	0,5333	0,8	1,067	1,4
M / Nm	0	119,7	240	361	482,6	605,3

Tolerance according to VDE 0530 T1 12.84 for rated power

Starting current	Starting torque	Moment of inertia	No. starts per hour
1170 A	1400 Nm	1,26 kg m²	15

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Data version June 2020

Standard and options

Description	Standard	Option
Max. ambient temperature	40 °C	60 °C
Max. submergence depth	20 m	-
Mains voltage	380...420 V/50 Hz	Other voltage on request
Voltage tolerance	multi-voltage ± 5 %; 400 V ± 10 %	-
Insulation components	Class H [140 °C]	Class H [160 °C] (not for Ex)
Start-up	DOL [direct on line], star-delta, VFD or soft starter	-
Approval	non-Ex	Ex/ATEX *
Cables	H07RN8-F	EMC shielded cables
Cable length (m)	10	15, 20, 30, 40, 50
Mechanical seal (medium side)	SiC-SiC (NBR)	SiC-SiC (Viton execution)
Mechanical seal (motor side)	SiC-SiC	-
O-rings	NBR	Viton
Preparation for lifting hoist	Lifting hoop	Lifting hoop in stainless steel *
Protective coating	Two component epoxy resin coating	Special coatings on request
Cathodic protection	-	Zinc anodes on request
Installation	Wet-well	Dry-well vertical/horizontal
Motor cooling	Cooling by surrounding medium	Closed loop cooling system **
Moisture sensor motor housing / connection chamber	PE3, PE6	PE4, PE5
Moisture sensor inspection chamber	PE4 - PE6	-
Vibration sensor	-	PE4 - PE6

* Standard for PE3. ** Standard for PE6.

Motor protection

PE3 to PE6		non-Ex	Ex/ATEX
Winding	Bi-metallic switch	●	●*
	Thermistor (PTC)	O	O*
	PT 100	O**	O**
Moisture sensor	Inspection chamber	●**	O**
	Motor housing	O (● for PE3 and PE6)	●
	Connection chamber	O** (● for PE6)	O** (● for PE6)
Temperature bearing upper/ lower	Bi-metallic switch	O** (● for PE6)	O** (● for PE6)
	Thermistor (PTC)	O**	O**
	PT 100	O**	O**
Vibration sensor	0 - 20 mm/s	O**	O**

● = standard. O = option. * PTC to be used when operated via VFD. ** Not available for PE3.

Materials

Motor	Standard	Option
Connection chamber	EN-GJL-250	-
Cooling chamber	EN-GJL-250	-
Cooling jacket	1.0036 (PE4 - PE6)*	-
Motor housing	EN-GJL-250	-
Motor shaft	1.4021	1.4462
Fasteners (medium contact)	1.4401	-
Lifting hoop (PE3)	1.4401	-
Lifting hoop (PE4 & PE5)	EN-GJS-400-18	1.4470
Lifting hoop (PE6)	1.0553	1.4462
Hydraulics		
Volute	EN-GJL-250	1.4470
Impeller	EN-GJL-250	1.4470**
Bottom plate (only CB version)	EN-GJL-250	1.4470**
Shroud (XFP 501U and 600X)	EN-GJL-250	-
Wear ring (only CH version)	EN-GJL-300	1.4581
Wear ring impeller (only CH version)		1.4571

Connection system (wet)	Standard	Option
Pedestal	EN-GJL-250	Non sparking
Fastening elements	Stainless steel	-
Protective coating	Epoxy resin based	-
Guide rail	Galvanized steel	Stainless steel
Pipe retainer	EN-GJS-400-18	1.4470
Connection system (dry)		
Support frame	1.0036	Galvanized steel

* PE3 = EN-GJL-250. ** or EN-GJL-250 flame hardenend for CB version.

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